INJECTION WELL COMPLETION REPORT FORM 7520-9-- EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc.
July 22, 2011

Mountain States ACCUTEST.

IT'S ALL IN THE CHEMISTRY

09/02/10

Technical Report for

Hydrokinetics

ECCV DI-1

WOLFCAMP

Accutest Job Number: D16918

Sampling Date: 08/30/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 11

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Table of Contents

Sections: 1 2 3 4 5

Sample Summary

Hydrokinetics

Job No: D16918

ECCV DI-1
Project No: WOLFCAMP

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D16918-1	08/30/10	11:45	PO	08/30/10	AQ	Water	ECCV DI-1 WOLFCAMP

ACCUTEST Laboratories

2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D16918
Site:	ECCV DI-1	**Report Dat**	9/2/2010 6:04:04 PM

On 08/30/2010, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.9 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16918 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix	ALL	Batch ID:	GN6153

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix	AQ	Batch ID:	GP2683

- Sample(s) D16918-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix	AQ	Batch ID:	GN6135

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16652-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	ECCV DI-1 WOLFCAMP		
Lab Sample ID:	D16918-1	**Date Sampled:**	08/30/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	17900	10	mg/l	1	08/30/10	JD	SM20 2540C
Specific Conductivity	25900	1.0	umhos/cm	1	08/31/10	CJ	SM20 2510B
Specific Gravity by Hydromete	1.0129			1	08/30/10	CJ	ASTM D287
pH	6.02		su	1	08/30/10 13:45	JK	SM20 4500H

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST Laboratories

CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, Colorado 80033
TEL. 303-425-6021, 877-737-4521 FAX: 303-425-6854
www.accutest.com

D16918

FED-EX Tracking # | Bottle Order Control # | Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: Hydrokinetics
Street Address:
City / State / Zip:
Project Contact: Pat O'Brien
E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Pat O'B
Phone #:

Project Information

Project Name: ECCU DI-1 WolFCAMP
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name: Same.
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet): PH TDS; Specific COND.; Specific GRAVITY

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	PH TDS	Specific COND.	Specific GRAVITY	LAB USE ONLY
	ECCV DI-1 WOLFCAMP		8-30-10	11:45	POD	W	1									X	X	X	01

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] UST Analysis 3-5 Days
- [ ] 6-9 Day RUSH
- [ ] ~~3-5 Day RUSH~~
- [x] 2 Day EMERGENCY
- [ ] ~~1 Day EMERGENCY~~

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Level 1
- [ ] Level 2
- [ ] Level 3
- [ ] Level 4
- [x] PDF
- [ ] EDD Format
- [ ] Other

Level 1 = Results Only
Level 2 = Results + QC Summary + Case Narrative
Level 3 = Results + QC Summary + Partial Raw data
Level 4 = Full Deliverable

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Pat O'B	8-30-10 12:30	1 Jacob Porter 8/30/10 12:30pm	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[x] Intact [ ] Not intact	Preserved where applicable [x]; On Ice [x]; Cooler Temp. 5.9

D16918: Chain of Custody
Page 1 of 1

General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16918
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN6135	10	0.0	mg/l	400	397	99.3	90-110%
Specific Conductivity	GP2683/GN6155			umhos/cm	99.9	90	90.0	90-110%
pH	GN6148			su	8.00	7.99	99.9	99.3-100.7
pH	GN6148			su	8.00	7.99	99.9	99.3-100.7

Associated Samples:
Batch GN6135: D16918-1
Batch GN6148: D16918-1
Batch GP2683: D16918-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16918
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6135	D16652-1	mg/l	518	526	1.5	0-25%
Specific Conductivity	GP2683/GN6155	D16918-1	umhos/cm	25900	25800	0.4	0-20%

Associated Samples:
Batch GN6135: D16918-1
Batch GP2683: D16918-1
(*) Outside of QC limits

5.2

Mountain States ACCUTEST. Laboratories

IT'S ALL IN THE CHEMISTRY

09/15/10

Technical Report for

Hydrokinetics

ECCV DI-1 WOLFCAMP, AMAZON/COUNCIL GROVE

Accutest Job Number: D16928

Sampling Dates: 08/26/10 - 08/30/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 37

ACCREDITED IN ACCORDANCE WITH nelac

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Jesse L. Smith
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6

Table of Contents

Sample Summary

Hydrokinetics

ECCV DI-1

Job No: D16928

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D16928-1	08/26/10	14:30	POB	08/30/10	AQ	Water	DI-1 CG-AMAZON
D16928-1F	08/26/10	14:30	POB	08/30/10	AQ	Water	DI-1 CG-AMAZON
D16928-2	08/30/10	11:45	POB	08/30/10	AQ	Water	DI-1 WOLFCAMP
D16928-2F	08/30/10	11:45	POB	08/30/10	AQ	Water	DI-1 WOLFCAMP

ACCUTEST Laboratories

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D16928
Site:	ECCV DI-1	**Report Dat**	9/15/2010 10:12:28 AM

On 08/30/2010, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 20.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D16928 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010B

Matrix AQ	**Batch ID:** MP2796

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16898-1FMS, D16898-1FMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix AQ	**Batch ID:** MP2806

- All samples were digested within and analyzed the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16869-3MS, D16869-3MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Silicon are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ	Batch ID: GP2699

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16940-2MS, D16940-2MSD were used as the QC samples for the Chloride, Nitrate as Nitrogen , Phosphate, Ortho analysis.
- D16928-1 and D16928-2 for Nitrogen, Nitrate, Phosphate, Ortho: Elevated detection limit due to matrix interference. The samples were analyzed outside the 48 hour holding time for Nitrate.

Matrix AQ	Batch ID: GP2701

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16579-2MS, D16579-2MSD were used as the QC samples for the Fluoride analysis.

Matrix AQ	Batch ID: GP2716

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16982-8MS, D16982-8MSD were used as the QC samples for the Chloride analysis.

Matrix AQ	Batch ID: GP2722

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16920-1MS, D16920-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM20 2320B

Matrix AQ	Batch ID: GN6229

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix AQ	Batch ID: GN6230

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 6010B

Matrix AQ	Batch ID: R4217

- The data for SW846 6010B meets quality control requirements.
- Dissolved Silica: Calculated as: (Silicon x 2.139)

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 CG-AMAZON		
Lab Sample ID:	D16928-1	**Date Sampled:**	08/26/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	1660	33	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Calcium	620000	1300	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Iron	216000	230	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Magnesium	123000	670	ug/l	1	09/07/10	09/09/10	JM	SW846 6010B [2]	SW846 3010A [3]
Manganese	4470	17	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Potassium	574000	3300	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Sodium	5120000	13000	ug/l	10	09/07/10	09/09/10	JM	SW846 6010B [2]	SW846 3010A [3]
Strontium	11100	17	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA958
(2) Instrument QC Batch: MA962
(3) Prep QC Batch: MP2796

RL = Reporting Limit

Report of Analysis

Client Sample ID:	DI-1 CG-AMAZON		
Lab Sample ID:	D16928-1	**Date Sampled:**	08/26/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	1270	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Chloride	6380	250	mg/l	500	09/01/10 21:39	JML	EPA 300/SW846 9056
Fluoride	262	20	mg/l	100	09/03/10 15:56	GH	EPA 300/SW846 9056
Nitrogen, Nitrate [a]	< 1.1	1.1	mg/l	25	08/31/10 11:55	JML	EPA 300/SW846 9056
Phosphate, Ortho [b]	< 1.6	1.6	mg/l	25	08/31/10 11:55	JML	EPA 300/SW846 9056
Sulfate	2060	50	mg/l	100	08/31/10 21:05	JML	EPA 300/SW846 9056

(a) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Nitrate.

(b) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Phosphate.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 CG-AMAZON		
Lab Sample ID:	D16928-1F	**Date Sampled:**	08/26/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Silicon	61700	50	ug/l	1	09/08/10	09/10/10	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA967
(2) Prep QC Batch: MP2806

RL = Reporting Limit

Report of Analysis

Client Sample ID:	DI-1 CG-AMAZON		
Lab Sample ID:	D16928-1F	**Date Sampled:**	08/26/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Silica, Dissolved [a]	132	0.11	mg/l	1	09/10/10 16:51	JM	SW846 6010B

(a) Calculated as: (Silicon * 2.139)

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 WOLFCAMP		
Lab Sample ID:	D16928-2	**Date Sampled:**	08/30/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	807	10	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Calcium	118000	400	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Iron	40000	70	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Magnesium	12700	200	ug/l	1	09/07/10	09/09/10	JM	SW846 6010B [2]	SW846 3010A [3]
Manganese	4140	5.0	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]
Potassium	8130000	10000	ug/l	10	09/07/10	09/09/10	JM	SW846 6010B [2]	SW846 3010A [3]
Sodium	248000	4000	ug/l	10	09/07/10	09/09/10	JM	SW846 6010B [2]	SW846 3010A [3]
Strontium	2100	5.0	ug/l	1	09/07/10	09/08/10	JM	SW846 6010B [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA958
(2) Instrument QC Batch: MA962
(3) Prep QC Batch: MP2796

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 WOLFCAMP		
Lab Sample ID:	D16928-2	**Date Sampled:**	08/30/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	15.0	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Chloride	8770	250	mg/l	500	08/31/10 21:36	JML	EPA 300/SW846 9056
Fluoride	4.9	4.0	mg/l	20	08/31/10 12:57	GH	EPA 300/SW846 9056
Nitrogen, Nitrate [a]	< 0.90	0.90	mg/l	20	08/31/10 12:11	JML	EPA 300/SW846 9056
Phosphate, Ortho [b]	< 1.3	1.3	mg/l	20	08/31/10 12:11	JML	EPA 300/SW846 9056
Sulfate	356	10	mg/l	20	08/31/10 12:11	JML	EPA 300/SW846 9056

(a) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Nitrate.
(b) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Phosphate.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 WOLFCAMP		
Lab Sample ID:	D16928-2F	**Date Sampled:**	08/30/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Silicon	290	50	ug/l	1	09/08/10	09/10/10	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA967
(2) Prep QC Batch: MP2806

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 WOLFCAMP		
Lab Sample ID:	D16928-2F	**Date Sampled:**	08/30/10
Matrix:	AQ - Water	**Date Received:**	08/30/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Silica, Dissolved [a]	0.62	0.11	mg/l	1	09/10/10 17:01	JM	SW846 6010B

(a) Calculated as: (Silicon * 2.139)

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST Laboratories

CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, Colorado 80033
TEL. 303-425-6021; 877-737-4521 FAX: 303-425-6854
www.accutest.com

D16928

PAGE 1 OF 1

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information
Company Name: HydroKinetics
Street Address:
City / State / Zip:
Project Contact: PAT OBRIEN E-mail:
Phone # / Fax #:
Sampler(s) Name(s): Pat OB Phone #:

Project Information
Project Name: ECCV DI-1
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name: Same
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet): Na, Ca, Mg, Ba, Sr, K | Fe, Mn, Cl, SO4 | Nitrate, CARB, BICARB | F⁻, PO4, SILICA | Sulfide | Redox

Accutest Sample #	Field ID / Point of Collection	MECH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Na, Ca, Mg, Ba, Sr, K	Fe, Mn, Cl, SO4	Nitrate, CARB, BICARB	F⁻, PO4, SILICA	Sulfide	Redox	LAB USE ONLY
	DI-1 CG-AMAZON		8-26-10	1430	POD	W	1									X	X	X	X	X	X	01
	DI-1 WOLFCAMP		8-30-10	1145	POD	W	1									X	X	X	X	X	X	02

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Turnaround Time (Business days)
- [X] Std. 10 Business Days
- [ ] UST Analysis 3-5 Days
- [ ] 8 - 9 Day RUSH
- [ ] 3 - 5 Day RUSH
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information
- [ ] Level 1
- [ ] Level 2
- [ ] Level 3
- [ ] Level 4
- [ ] PDF
- [ ] EDD Format
- [ ] Other

Level 1 = Results Only
Level 2 = Results + QC Summary + Case Narrative
Level 3 = Results + QC Summary + Partial Raw data
Level 4 = Full Deliverable

Comments / Special Instructions
Test for all parameters possible, even if holding times not met.
Cannot do Sulfide or Redox

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Pat OB	8-30-10 16:25	1 [signature] 8/30/10 1625	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #: ☐ Intact ☒ Not intact	Preserved where applicable ☒ On Ice ☐ NO	Cooler Temp. 20.1

4.1

4

D16928: Chain of Custody
Page 1 of 1

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/07/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	7	49		
Antimony	30	1.7	13		
Arsenic	25	2.8	6.5		
Barium	10	.14	2.4	0.20	<10
Beryllium	10	1.4	4.4		
Boron	50	3.5	19		
Cadmium	10	.22	1.2		
Calcium	400	17	9.2	25.4	<400
Chromium	10	.27	1.6		
Cobalt	5.0	.48	.3		
Copper	5.0	1.6	2.7		
Iron	70	7.7	10	8.2	<70
Lead	50	1.3	3.2		
Lithium	2.0	.76	1.6		
Magnesium	200	5.8	12	7.0	<200
Manganese	5.0	.21	.7	0.30	<5.0
Molybdenum	10	.41	1.2		
Nickel	30	.38	.6		
Phosphorus	100	15	54		
Potassium	1000	380	540	140	<1000
Selenium	50	2.8	7.2		
Silicon	50	12	20		
Silver	30	.98	.3		
Sodium	400	230	23	107	<400
Strontium	5.0	.091	3.4	0.0	<5.0
Thallium	10	3.1	2.1		
Tin	50	14	4.4		
Titanium	10	.098	.7		
Uranium	50	2.2	3.9		
Vanadium	10	.27	.3		
Zinc	30	.76	1.7		

Associated samples MP2796: D16928-1, D16928-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.1

5

ACCUTEST.
D16928

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/07/10

Metal	D16898-1F Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	7.5	1990	2000	99.1	75-125
Beryllium					
Boron					
Cadmium	anr				
Calcium	12700	36600	25000	95.6	75-125
Chromium	anr				
Cobalt					
Copper	anr				
Iron	8.5	4610	5000	92.0	75-125
Lead	anr				
Lithium					
Magnesium	2450	26000	25000	94.2	75-125
Manganese	26.4	499	500	94.5	75-125
Molybdenum					
Nickel					
Phosphorus					
Potassium	2170	27800	25000	102.5	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	297000	330000	25000	132.0(a)	75-125
Strontium	330	857	500	105.4	75-125
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP2796: D16928-1, D16928-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/07/10

Metal	D16898-1F Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	7.5	2000	2000	99.6	0.5	20
Beryllium						
Boron						
Cadmium	anr					
Calcium	12700	36600	25000	95.6	0.0	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	8.5	4620	5000	92.2	0.2	20
Lead	anr					
Lithium						
Magnesium	2450	25300	25000	91.4	2.7	20
Manganese	26.4	506	500	95.9	1.4	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	2170	27900	25000	102.9	0.4	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	297000	310000	25000	52.0 (a)	6.3	20
Strontium	330	847	500	103.4	1.2	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP2796: D16928-1, D16928-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV D1-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/07/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	2020	2000	101.0	80-120
Beryllium				
Boron				
Cadmium	anr			
Calcium	24200	25000	96.8	80-120
Chromium	anr			
Cobalt				
Copper	anr			
Iron	4660	5000	93.2	80-120
Lead	anr			
Lithium				
Magnesium	23700	25000	94.8	80-120
Manganese	485	500	97.0	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	25500	25000	102.0	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	25500	25000	102.0	80-120
Strontium	529	500	105.8	80-120
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP2796: D16928-1, D16928-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

5.1.3

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2796
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.3

5

ACCUTEST.

D16928

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/08/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	7	49		
Antimony	30	1.7	13		
Arsenic	25	2.8	6.5		
Barium	10	.14	2.4		
Beryllium	10	1.4	4.4		
Boron	50	3.5	19		
Cadmium	10	.22	1.2		
Calcium	400	17	9.2		
Chromium	10	.27	1.6		
Cobalt	5.0	.48	.3		
Copper	5.0	1.6	2.7		
Iron	70	7.7	10		
Lead	50	1.3	3.2		
Lithium	2.0	.76	1.6		
Magnesium	200	5.8	12		
Manganese	5.0	.21	.7		
Molybdenum	10	.41	1.2		
Nickel	30	.38	.6		
Phosphorus	100	15	54		
Potassium	1000	380	540		
Selenium	50	2.8	7.2		
Silicon	50	12	20	16.4	<50
Silver	30	.98	.3		
Sodium	400	230	23		
Strontium	5.0	.091	3.4		
Thallium	10	3.1	2.1		
Tin	50	11	4.4		
Titanium	10	.098	.7		
Uranium	50	2.2	3.9		
Vanadium	10	.27	.3		
Zinc	30	.76	1.7		

Associated samples MP2806: D16928-1F, D16928-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.2.1

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/08/10

Metal	D16869-3 Original MS	Spikelot MPICPALL % Rec	QC Limits
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Boron	anr		
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	anr		
Lithium	anr		
Magnesium	anr		
Manganese	anr		
Molybdenum	anr		
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon	7470 8970	1000	131.0(a) 75-125
Silver	anr		
Sodium	anr		
Strontium	anr		
Thallium			
Tin			
Titanium			
Uranium	anr		
Vanadium			
Zinc	anr		

Associated samples MP2806: D16928-1F, D16928-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.2.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/08/10

Metal	D16869-3 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon	7470	9550	1000	189.0(a)	6.3	20
Silver	anr					
Sodium	anr					
Strontium	anr					
Thallium						
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	anr					

Associated samples MP2806: D16928-1F, D16928-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.2.2 5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/08/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon	1020	1000	102.0	80-120
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP2806: D16928-1F, D16928-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.2.3

5

ACCUTEST.

D16928

General Chemistry

6

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN6229	5.0	2.6	mg/l	100	99.4	99.4	90-110%
Alkalinity, Carbonate	GN6230	5.0	0.0	mg/l	100	99.4	99.4	80-120%
Bromide	GP2716/GN6220	0.20	0.0	mg/l	20	19.1	95.5	90-110%
Chloride	GP2699/GN6179	0.50	0.0	mg/l	20	21.1	105.5	90-110%
Chloride	GP2701/GN6184	0.50	0.0	mg/l	20	18.5	92.5	90-110%
Chloride	GP2716/GN6220	0.50	0.17	mg/l	20	21.0	105.0	90-110%
Chloride	GP2722/GN6264	0.50	0.0	mg/l	20	19.1	95.5	90-110%
Fluoride	GP2701/GN6184	0.20	0.0	mg/l	10	9.50	95.0	90-110%
Fluoride	GP2722/GN6264	0.20	0.0	mg/l	10	9.38	93.8	90-110%
Nitrogen, Nitrate	GP2699/GN6179	0.045	0.0	mg/l	4.52	4.33	95.8	90-110%
Nitrogen, Nitrate	GP2716/GN6220	0.045	0.0	mg/l	4.52	4.27	94.5	90-110%
Nitrogen, Nitrite	GP2699/GN6179	0.061	0.0	mg/l	6.09	6.02	98.9	90-110%
Nitrogen, Nitrite	GP2716/GN6220	0.061	0.0	mg/l	6.09	5.98	98.2	90-110%
Phosphate, Ortho	GP2699/GN6179	0.065	0.0	mg/l	9.78	9.29	95.0	90-110%
Phosphate, Ortho	GP2716/GN6220	0.065	0.0	mg/l	9.78	9.26	94.7	90-110%
Sulfate	GP2699/GN6179	0.50	0.0	mg/l	30	29.4	98.0	90-110%
Sulfate	GP2701/GN6184	0.50	0.26	mg/l	30	29.1	97.0	90-110%
Sulfate	GP2716/GN6220	0.50	0.0	mg/l	30	29.1	97.0	90-110%
Sulfate	GP2722/GN6264	0.50	0.0	mg/l	30	29.2	97.3	90-110%

Associated Samples:
Batch GN6229: D16928-1, D16928-2
Batch GN6230: D16928-1, D16928-2
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP2716/GN6220	D16982-8	mg/l	0.0	2.5	2.5	100.0	80-120%
Chloride	GP2699/GN6179	D16940-2	mg/l	84.8	100	188	103.2	80-120%
Chloride	GP2701/GN6184	D16579-2	mg/l	147	50	202	110.0	80-120%
Chloride	GP2716/GN6220	D16982-8	mg/l	7.9	10	18.7	108.0	80-120%
Chloride	GP2722/GN6264	D16920-1	mg/l	13.6	10	24.1	105.0	80-120%
Fluoride	GP2701/GN6184	D16579-2	mg/l	0.55	12.5	11.9	90.8	80-120%
Fluoride	GP2722/GN6264	D16920-1	mg/l	0.40	2.5	2.8	96.0	80-120%
Nitrogen, Nitrate	GP2699/GN6179	D16940-2	mg/l	4.3	5.65	9.9	99.1	80-120%
Nitrogen, Nitrate	GP2716/GN6220	D16982-8	mg/l	0.085	0.565	0.65	100.0	80-120%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	3.0	98.5	80-120%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	3.0	98.5	80-120%
Nitrogen, Nitrite	GP2716/GN6220	D16982-8	mg/l	0.0	0.305	0.31	101.8	80-120%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.1	87.1	80-120%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.1	87.1	80-120%
Phosphate, Ortho	GP2716/GN6220	D16982-8	mg/l	0.0	0.815	0.78	95.7	80-120%
Sulfate	GP2701/GN6184	D16579-2	mg/l	97.8	50	150	104.4	80-120%
Sulfate	GP2716/GN6220	D16982-8	mg/l	12.9	10	24.0	111.0	80-120%
Sulfate	GP2722/GN6264	D16920-1	mg/l	42.4	10	51.9	95.0	80-120%

Associated Samples:
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16928
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP2716/GN6220	D16982-8	mg/l	0.0	2.5	2.5	0.0	20%
Chloride	GP2699/GN6179	D16940-2	mg/l	84.8	100	185	1.6	20%
Chloride	GP2701/GN6184	D16579-2	mg/l	147	50	200	1.0	20%
Chloride	GP2716/GN6220	D16982-8	mg/l	7.9	10	18.4	1.6	20%
Chloride	GP2722/GN6264	D16920-1	mg/l	13.6	10	24.1	0.0	20%
Fluoride	GP2701/GN6184	D16579-2	mg/l	0.55	12.5	12.1	1.7	20%
Fluoride	GP2722/GN6264	D16920-1	mg/l	0.40	2.5	2.8	0.0	20%
Nitrogen, Nitrate	GP2699/GN6179	D16940-2	mg/l	4.3	5.65	9.7	2.0	20%
Nitrogen, Nitrate	GP2716/GN6220	D16982-8	mg/l	0.085	0.565	0.64	1.6	20%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	2.7	10.5	20%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	2.7	10.5	20%
Nitrogen, Nitrite	GP2716/GN6220	D16982-8	mg/l	0.0	0.305	0.30	3.3	20%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.0	1.4	20%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.0	1.4	20%
Phosphate, Ortho	GP2716/GN6220	D16982-8	mg/l	0.0	0.815	0.77	1.3	20%
Sulfate	GP2701/GN6184	D16579-2	mg/l	97.8	50	150	0.0	20%
Sulfate	GP2716/GN6220	D16982-8	mg/l	12.9	10	23.6	1.7	20%
Sulfate	GP2722/GN6264	D16920-1	mg/l	42.4	10	51.7	0.4	20%

Associated Samples:
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

INJECTION WELL COMPLETION REPORT FORM 7520-9-- EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc.
July 22, 2011

Mountain States ACCUTEST LABORATORIES

IT'S ALL IN THE CHEMISTRY

09/01/10

Technical Report for

Hydrokinetics

ECCV DI-1 AMAZON/COUNCIL GROVE

Accutest Job Number: D16880

Sampling Date: 08/26/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 12

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Table of Contents

Sections: 1 2 3 4 5

-1-

Sample Summary

Hydrokinetics

ECCV DI-1

Job No: D16880

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D16880-1	08/26/10	14:30	PO	08/27/10	AQ	Water	DI-1 CG-AMAZON

ACCUTEST Laboratories

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D16880
Site:	ECCV DI-1	**Report Dat**	9/1/2010 5:41:03 PM

On 08/27/2010, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16880 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix	ALL	Batch ID:	GN6153

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix	AQ	Batch ID:	GP2683

- Sample(s) D16918-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix	AQ	Batch ID:	GN6135

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16652-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 CG-AMAZON		
Lab Sample ID:	D16880-1	**Date Sampled:**	08/26/10
Matrix:	AQ - Water	**Date Received:**	08/27/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	15800	10	mg/l	1	08/30/10	JD	SM20 2540C
Specific Conductivity	21100	1.0	umhos/cm	1	08/31/10	CJ	SM20 2510B
Specific Gravity by Hydromete	1.0129			1	08/30/10	CJ	ASTM D287
pH	6.47		su	1	08/27/10 14:45	JD	SM20 4500H

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D16880 **Client:** HYDROKINETKS **Immediate Client Services Action Required:** No

Date / Time Received: 8/27/2010 11:13:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: ECCV DI-1 **Airbill #'s:** hd

Cooler Security	Y or N		Y or N
1 Custody Seals Present:	☑ ☐	3 COC Present:	☑ ☐
2 Custody Seals Intact:	☑ ☐	4 Smpl Dates/Time OK	☑ ☐

Cooler Temperature	Y or N
1 Temp criteria achieved:	☑ ☐
2 Cooler temp verification:	Infared gun
3 Cooler media:	Ice (bag)

Quality Control Preservation	Y or N	N/A
1 Trip Blank present / cooler:	☐ ☐	
2 Trip Blank listed on COC:	☐ ☐	
3 Samples preserved properly:	☑ ☐	
4 VOCs headspace free:	☐ ☐	☑

Sample Integrity - Documentation	Y or N
1 Sample labels present on bottles:	☑ ☐
2. Container labeling complete:	☑ ☐
3. Sample container label / COC agree:	☑ ☐

Sample Integrity - Condition	Y or N
1. Sample recvd within HT:	☑ ☐
2. All containers accounted for:	☑ ☐
3. Condition of sample:	Intact

Sample Integrity - Instructions	Y or N	N/A
1. Analysis requested is clear:	☑ ☐	
2. Bottles received for unspecified tests	☐ ☑	
3. Sufficient volume rec'd for analysis:	☑ ☐	
4. Compositing instructions clear:	☐ ☐	☑
5. Filtering instructions clear:	☐ ☐	☑

Comments

Accutest Laboratories
V (303) 425-6021

4036 Youngfield Street
F (303) 425-6854

Wheat Ridge, CO
www/accutest.com

4.1

4

D16880: Chain of Custody
Page 2 of 2

General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16880
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN6135	10	0.0	mg/l	400	397	99.3	90-110%
Specific Conductivity	GP2683/GN6155			umhos/cm	99.9	90	90.0	90-110%
pH	GN6122			su	8.00	7.98	99.8	99.3-100.7
pH	GN6122			su	8.00	7.98	99.8	99.3-100

Associated Samples:
Batch GN6122: D16880-1
Batch GN6135: D16880-1
Batch GP2683: D16880-1
(*) Outside of QC limits

5.1
5

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16880
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6135	D16652-1	mg/l	518	526	1.5	0-25%
Specific Conductivity	GP2683/GN6155	D16918-1	umhos/cm	25900	25800	0.4	0-20%

Associated Samples:
Batch GN6135: D16880-1
Batch GP2683: D16880-1
(*) Outside of QC limits

5.2

5

Mountain States ACCUTEST.

IT'S ALL IN THE CHEMISTRY

08/25/10

Technical Report for

Hydrokinetics

ECCV DI-1 MISSOURIAN

Accutest Job Number: D16627

Sampling Date: 08/22/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 11

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5

Table of Contents

-1-

Sample Summary

Hydrokinetics

ECCV DI-1

Job No: D16627

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D16627-1	08/22/10	14:40	PO	08/23/10	AQ	Water	DI-1 MISSOURIAN

ACCUTEST Laboratories

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D16627
Site:	ECCV DI-1	**Report Dat**	8/25/2010 5:16:32 PM

On 08/23/2010, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.8°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16627 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix	ALL	**Batch ID:**	GN6050

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix	AQ	**Batch ID:**	GP2631

- Sample D16627-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix	AQ	**Batch ID:**	GN6058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D16627-1DUP was used as the QC samples for the Total Dissolved Solids analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 MISSOURIAN		
Lab Sample ID:	D16627-1	**Date Sampled:**	08/22/10
Matrix:	AQ - Water	**Date Received:**	08/23/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	21000	10	mg/l	1	08/25/10	CJ	SM20 2540C
Specific Conductivity	3090	1.0	umhos/cm	1	08/24/10	CJ	SM20 2510B
Specific Gravity by Hydromete	1.0143			1	08/24/10	CJ	ASTM D287
pH	7.74		su	1	08/23/10 15:05	JK	SM20 4500H

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES

4036 Youngfield Street, Wheat Ridge, Colorado 80033
TEL. 303-425-6021; 877-737-4521 FAX: 303 425-6854
www.accutest.com

D16627

PAGE 1 OF 1

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #:

Client / Reporting Information

Company Name: HydroKinetics
Street Address: 12975 W. 24 PL
City: Golden State: 6 Zip:
Project Contact: PAT OBRIEN E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Pat OBrien Phone #:

Project Information

Project Name: ECCV DI-1
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

TDS, PH | Specific Cond. | Specific Gravity

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	LAB USE ONLY
	DI-1 MISSOURIAN		8-22-10	1440	PO	W	1									01

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] UST Analysis 3-5 Days
- [ ] 6 - 9 Day RUSH
- [ ] 3 - 5 Day RUSH
- [x] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Labtink

Data Deliverable Information

- [ ] Level 1
- [ ] Level 2
- [ ] Level 3
- [ ] Level 4
- [ ] PDF
- [ ] EDD Format
- [ ] Other

Level 1 = Results Only
Level 2 = Results + QC Summary + Case Narrative
Level 3 = Results + QC Summary + Partial Raw data
Level 4 = Full Deliverable

Comments / Special Instructions

Save sample for client pickup

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Pat OBrien	8-23-10 12:28	1	2		2
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not Intact	Preserved where applicable [ ]

On Ice: [x] Cooler Temp: 3.8

4.1 4

D16627: Chain of Custody
Page 1 of 1

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16627
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN6058	10	0.0	mg/l	400	372	93.0	90-110%
Specific Conductivity	GP2631/GN6048			umhos/cm	99.9	90.3	90.4	90-110%
pH	GN6029			su	8.00	7.96	99.5	99.3-100.7*

Associated Samples:
Batch GN6029: D16627-1
Batch GN6058: D16627-1
Batch GP2631: D16627-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16627
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

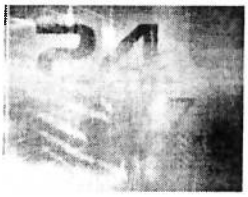
Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6058	D16627-1	mg/l	21000	20900	0.5	0-25%
Specific Conductivity	GP2631/GN6048	D16627-1	umhos/cm	3090	3100	0.3	0-20%

Associated Samples:
Batch GN6058: D16627-1
Batch GP2631: D16627-1
(*) Outside of QC limits

5.2
5

Mountain States ACCUTEST LABORATORIES

Reissue #1
11/03/10



Technical Report for

Hydrokinetics

ECCV DI-1 MISSOURIAN - Specific Cond, correction

Accutest Job Number: D16627

Sampling Date: 08/22/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 12

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton
Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

ACCUTEST
laboratories

November 3, 2010

Pat O'Brien
12975 West 24th Place
Golden, CO 80401

Reference: Accutest Job D16627 (Revision 1)

Dear Mr. O'Brien:

The final report for Accutest report D16627 has been revised to correctly report the Specific Conductivilty result for sample DI-1 MISSOURIAN (D16627-1) that had been incorrectly entered into the Laboratory Information Management System (LIMS) due to a transcription error. The corrected result is corroberated by the TDS result, which is typically 70 percent of the Specific Conductivity result.

We apologize for any inconvienence this may have caused.

Sincerely,

Joseph J Egry IV
Quality Assurance
Accutest Mountain States

Sections: 1 2 3 4 5

Table of Contents

-1-

Accutest Laboratories

Sample Summary

Hydrokinetics

ECCV DI-1

Job No: D16627

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D16627-1	08/22/10	14:40	PO	08/23/10	AQ	Water	DI-1 MISSOURIAN

ACCUTEST Laboratories

2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D16627
Site:	ECCV DI-1	**Report Dat**	8/25/2010 5:16:32 PM

On 08/23/2010, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.8°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16627 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix	ALL	**Batch ID:**	GN6050

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix	AQ	**Batch ID:**	GP2631

- Sample D16627-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix	AQ	**Batch ID:**	GN6058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D16627-1DUP was used as the QC samples for the Total Dissolved Solids analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Mountain States
ACCUTEST
LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 MISSOURIAN		
Lab Sample ID:	D16627-1	Date Sampled:	08/22/10
Matrix:	AQ - Water	Date Received:	08/23/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	21000	10	mg/l	1	08/25/10	CJ	SM20 2540C
Specific Conductivity	30900	1.0	umhos/cm	1	08/24/10	CJ	SM20 2510B
Specific Gravity by Hydromete	1.0143			1	08/24/10	CJ	ASTM D287
pH	7.74		su	1	08/23/10 15:05	JK	SM20 4500H

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, Colorado 80033
TEL. 303-425-6021; 877-737-4521 FAX: 303-425-6854
www.accutest.com

PAGE 1 OF 1

D16627

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: Hydrokinetics
Street Address: 12975 W. 24 PL
City: Golden State: CO Zip:
Project Contact: PAT OBRIEN E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Pat OBrien Phone #:

Project Information

Project Name: ECCV DI-1
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TDS, pH; Specific Cond.; Specific Gravity

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TDS, pH	Specific Cond.	Specific Gravity	LAB USE ONLY
	DI-1 MISSOURIAN		8-22-10	1440	PO	W	1									X	X	X	01

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Turnaround Time (Business days)
- [ ] Std. 10 Business Days
- [ ] UST Analysis 3-5 Days
- [ ] 6 - 9 Day RUSH
- [ ] 3 - 5 Day RUSH
- [X] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information
- [ ] Level 1
- [ ] Level 2
- [ ] Level 3
- [ ] Level 4
- [ ] PDF
- [ ] EDD Format
- [ ] Other

Level 1 = Results Only
Level 2 = Results + QC Summary + Case Narrative
Level 3 = Results + QC Summary + Partial Raw data
Level 4 = Full Deliverable

Comments / Special Instructions: Save sample for client pickup

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Pat OB	8-23-10 12:28	1 [signature] 8/23/10	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #		

Intact / Not intact; Preserved where applicable; On Ice: ☑; Cooler Temp. 3.8 8

4.1

4

D16627: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D16627
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN6058	10	0.0	mg/l	400	372	93.0	90-110%
Specific Conductivity	GP2631/GN6048			umhos/cm	99.9	90.3	90.4	90-110%
pH	GN6029			su	8.00	7.96	99.5	99.3-100.7*

Associated Samples:
Batch GN6029: D16627-1
Batch GN6058: D16627-1
Batch GP2631: D16627-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

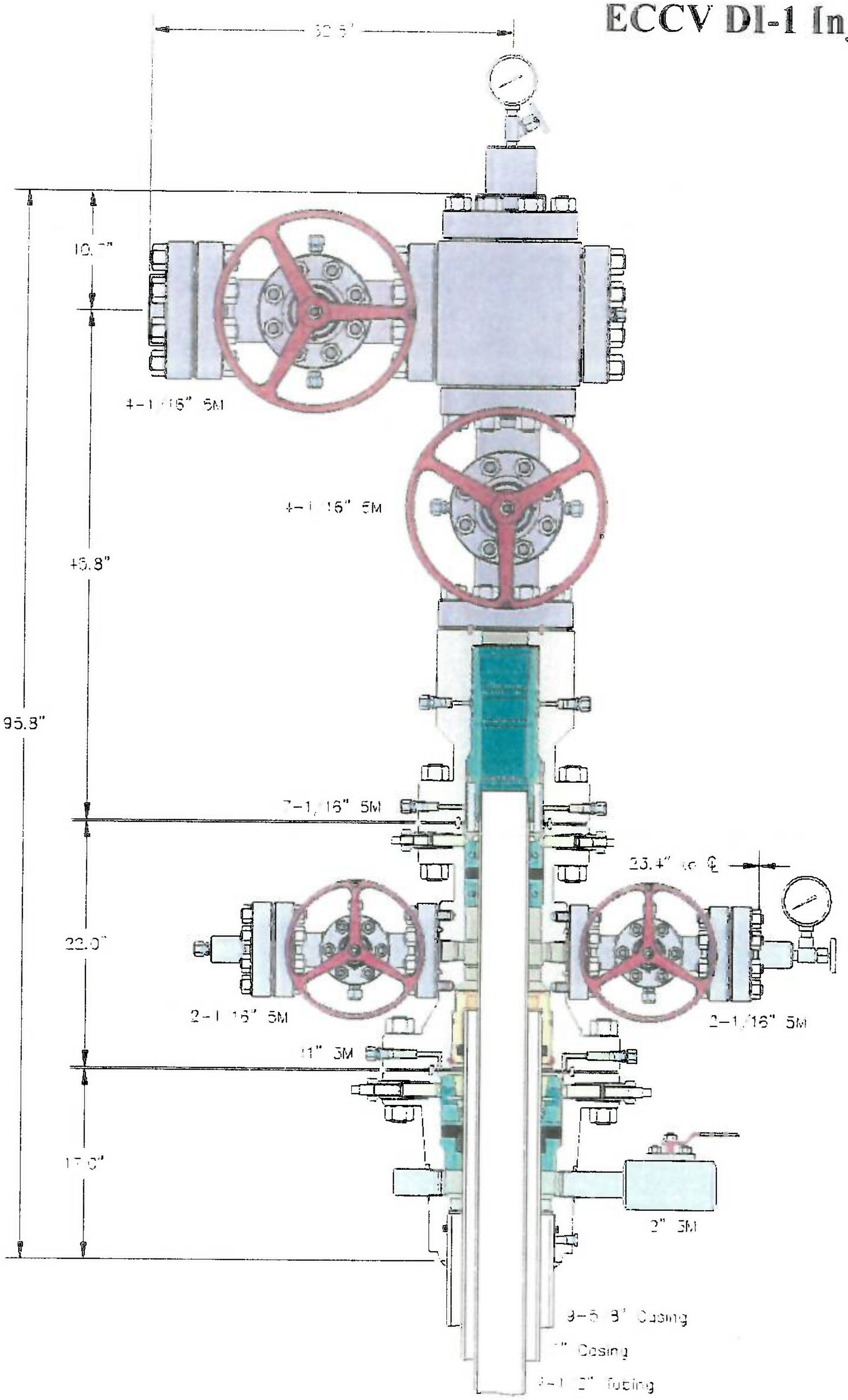
Login Number: D16627
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6058	D16627-1	mg/l	21000	20900	0.5	0-25%
Specific Conductivity	GP2631/GN6048	D16627-1	umhos/cm	30900	3100	0.3	0-20%

Associated Samples:
Batch GN6058: D16627-1
Batch GP2631: D16627-1
(*) Outside of QC limits

Appendix V. Logging and Testing Results

ECCV DI-1 Injection Well



"As Built"

WOOD GROUP PRESSURE CONTROL	Hydro Resources ECCV DI-1 Injection Well	
9-5/8" x 7" x 4-1/2" 5M Conventional Wellhead Assembly, With T-EBS Tubing Head, T-2W Tubing Hanger, C10 Coupling and Adapter Flange	DRAWN	BJS	29JUN10
	APPR	JJK	29JUN10
	DRAWING NO	4E18771-A	

MAVERICK STIMULATION COMPANY LLC
33 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

Date: 23-Sep-10

Well Name:	Location:	Customer Rep:		Field Order #
ECCV DI-1	SEC1 - T1S - R66W	FRED R		13083

Stage:	Formation:	Treat Via:	Allowable Pressure Tbg	Allowable Pressure Csg	Well Type:
	~~MISSOURI~~ Final Step Rate	CASING	5,000		INJECTION

County:	State:	Well Age:	PackerType:	PackerDepth:	Csg Size:
ADAMS	CO	NEW		9,052	7

Type Of Service:	PUMP	Csg Depth	Tbg Size:	Tbg Depth:	Liner Size:
			4.5		

Customer Name:	HYDRO RESOURCES	Liner Depth:	Liner Top:	Liner Bot:	Total Depth:
Address:					

		Open Hole:	Csg Vol:	BHT:

		Perf Depths:		Perfs:	TotalPerfs:
Remarks:	STEP RATES 5 BPM TO 40 BPM FOR 30 MIN INBETWEEN EACH RATE. PUMPED 870 BBL TOTAL ISIP=860 PSI 5 MIN =780 PSI 10 MIN =750 PSI 15 MIN = 720 PSI			0	0
				0	
				0	
				0	
				0	
				0	
				0	

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	FOAM/FLD (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
11:30	0.0		0		SAFETY MEETING			
11:30	0.0		0		PRIME UP PRESS TEST TO5500 PSI			
13:20	0.3		94		FILL HOLE	966	23	
13:22	5.2		496		ST 5 BPM AT 650 PSI		6,300	150.0
13:53	6.1		948		ST 10 BPM AT 830 PSI		12,600	300.0
14:22	6.0		920		PUMP DIED			
14:23	10.2		1144		ST 20 BPM AT 1170 PSI		25,200	600.0
14:54	19.9		1974		ST 39 BPM AT 1980 PSI		49,140	1,170.0
15:00	38.7		4794		INJECTION RATE @ 39 BPM AT 4800 PSI			
15:24	40.0		4765		PSI @ 4750 PSI			
15:25	40.1		4756		STEP DOWN		5,880	140.0
15:33	0.0		861		ISIP = 860 PSI			
15:39	0.0		776		5 MIN = 780 PSI			
15:43	0.0		747		10 MIN = 750 PSI			
15:48	0.0		722		15 MIN = 720 PSI			
					Total:	966	99,143	2,360.0

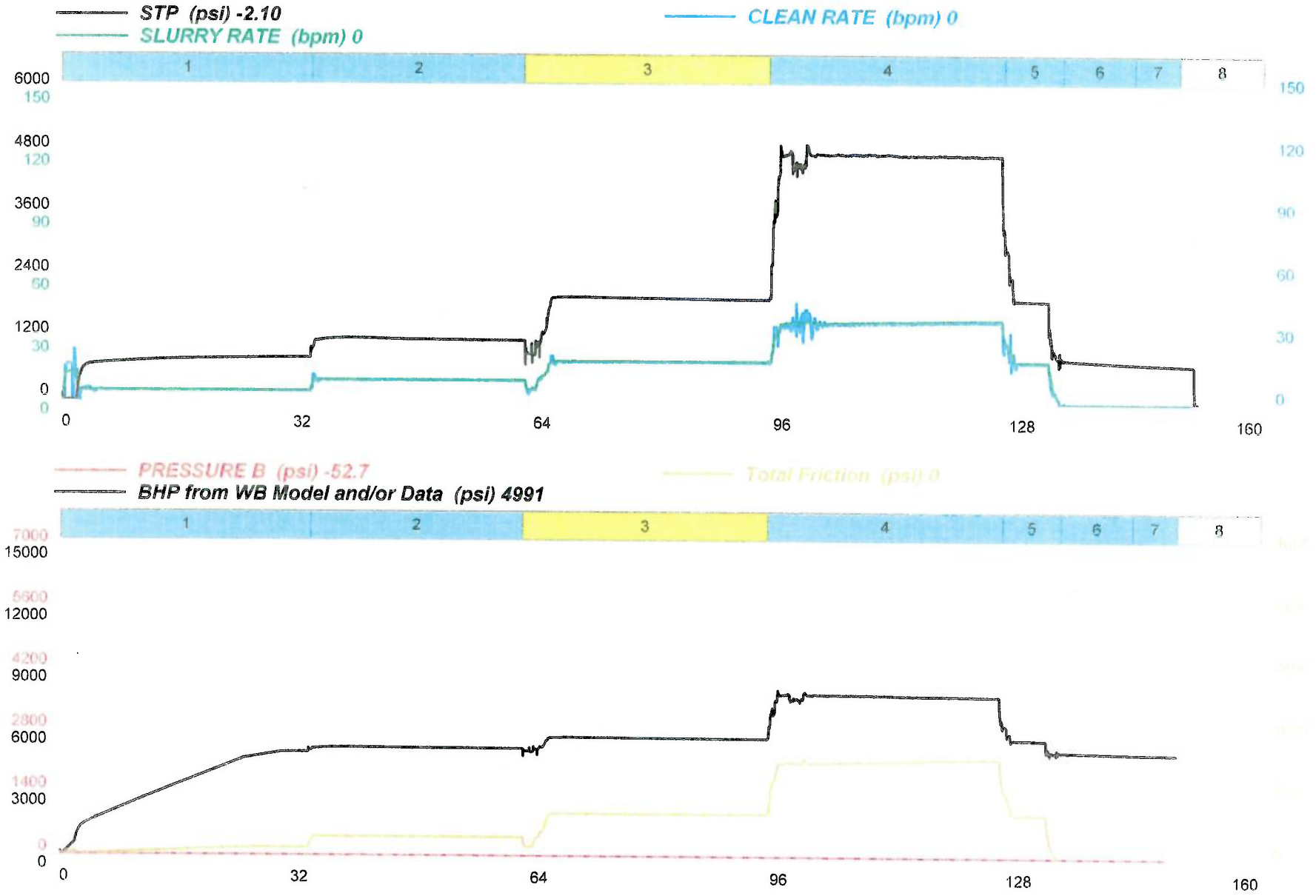
Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
40.1	13.5	5,014	1,972

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	☐ Satisfactory ☐ Unsatisfactory	RICK C	WATER PROVIDED BY CUSTOMER

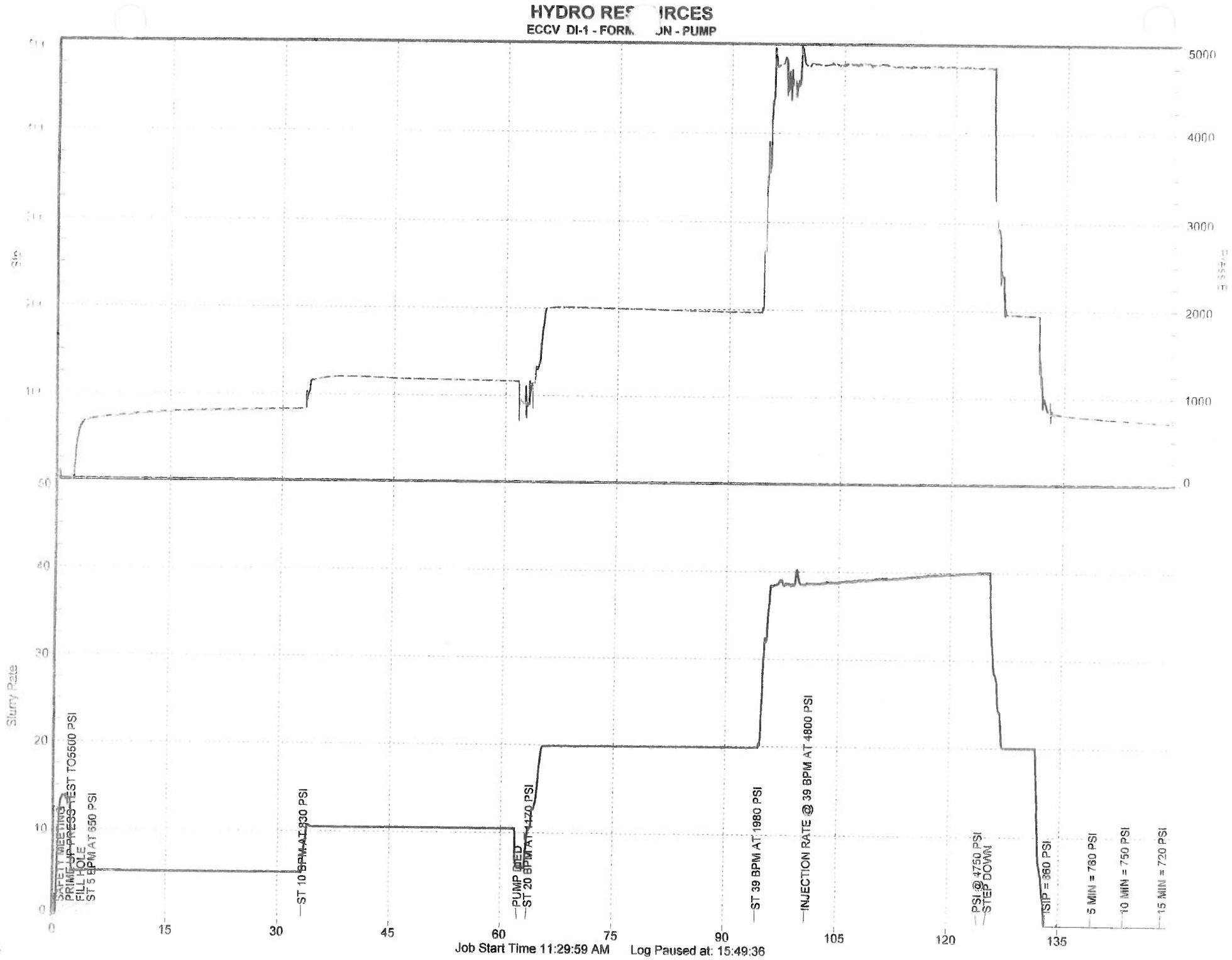
MAVERICK
STIMULATION COMPANY LLC

HYDRO RESOURCES
ECCV DI-1



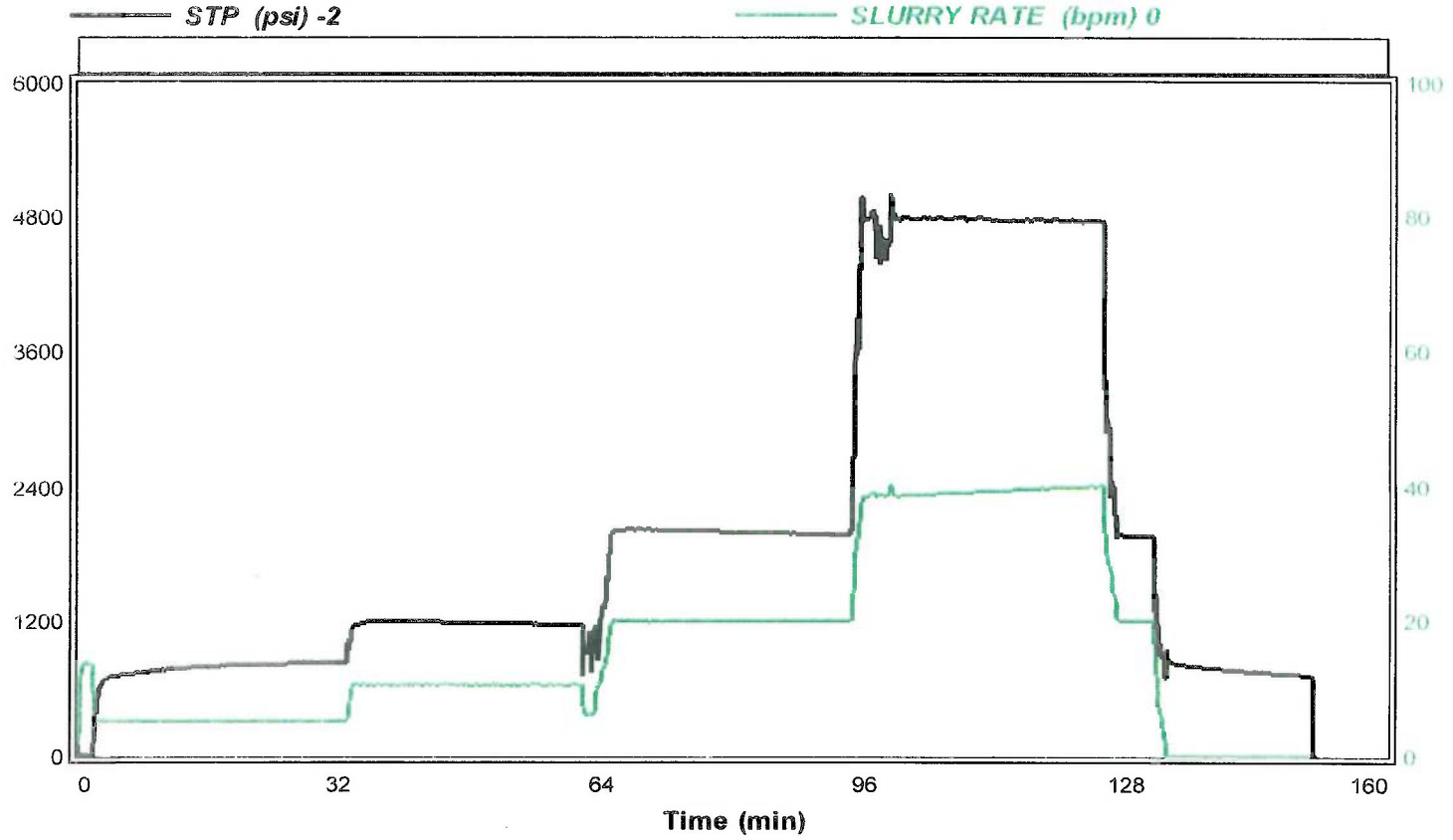
SEC 1 T1S, R66W ADAMS CO.

September 23, 2010


HYDRO RES IRCES
ECCV DI-1 - FORM ON - PUMP
5000
4000
3000
2000
1000
0
Slurry Rate
0
10
20
30
40
SAFETY MEETING
PRIME UP PRESS TEST TO5500 PSI
FILL HOLE
ST 5 BPM AT 350 PSI
ST 10 BPM AT 830 PSI
PUMP DED
ST 20 BPM AT 1470 PSI
ST 39 BPM AT 1980 PSI
INJECTION RATE @ 39 BPM AT 4800 PSI
PSI @ 4750 PSI
STEP DOWN
ISIP = 360 PSI
5 MIN = 780 PSI
10 MIN = 750 PSI
15 MIN = 720 PSI
0
15
30
45
60
75
90
105
120
135
Job Start Time 11:29:59 AM
Log Paused at: 15:49:36

HYDRO RESOURCES

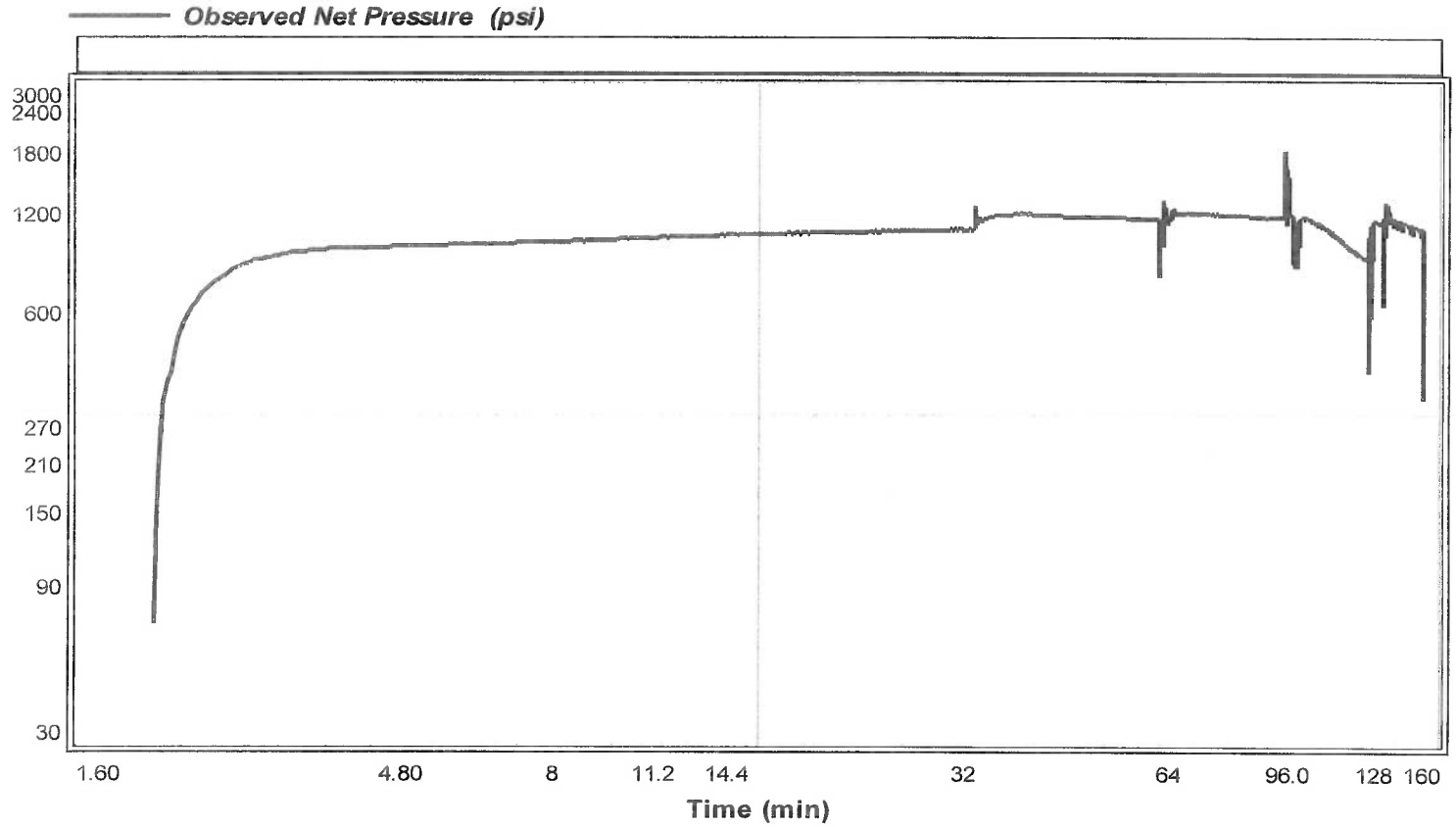
ECCV DI-1 OVERALL INJECTION



ADAMS CO.

HYDRO RESOURCES

ECCV DI-1 OVERALL



ADAMS CO.

INJECTION TESTS

INJECTION WELL COMPLETION REPORT FORM 7520-9-- EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc.
July 22, 2011

Lyons overall-Step Rate 2857

MAVERICK STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

TREATMENT REPORT PAGE 1

Date: 09-Sep-10

Well Name:	Location:	Customer Rep:	Field Order #
ECCV D-1	SEC 1- T1S - R66W	JOHN ASHBY	13074

Stage.	Formation:	Treat Via:	Allowable Pressure Tbg	Allowable Pressure Csg	Well Type:
	LYONS OVERALL	ANNULUS			INJECTION

County:	State:	Well Age:	PackerType:	PackerDepth:	Csg Size:
ADAMS	CO	NEW			7

Type Of Service: STEP RATE TEST

Customer Name: HYDRO RESOURCES

Address:

Remarks: PUMPED 1306 BBL OVER 7 STAGES

STP = SURFACE ANNULUS INJECTION PRESSURE

ANNULUS=STAIC TUBING PRESSURE

Csg Depth:	Tbg Size:	Tbg Depth:	Liner Size:

Liner Depth:	Liner Top:	Liner Bot:	Total Depth:

Open Hole:	Csg Vol:	BHT:

Perf Depths:		Perfs:	TotalPerfs:
9152	9253	200	200
		0	
		0	
		0	
		0	
		0	
		0	

TIME	INJECTION RATE FLUID	INJECTION RATE N2/CO2	PRESSURE STP	PRESSURE ANNULUS	REMARKS	PROP (lbs)	FOAM/FLD (gls)	FLUID (bbls)
13:42	2.3		21		SAFETY MEETING	0	0	0
13:42	2.3		21	0	PRIME UP PRESS TEST TO 5000 PSI	0	0	0
13:43	2.3		22	0	LOAD WELL	0	0	0
13:55	0.0		350	383	SHUT DOWN	0	0	0
13:59	0.0		244	290	FILL ANNULUS	0	0	0
14:06	2.0		583	648	ST 2 BPM AT600 PSI	0	4,452	106
14:36	1.9		784	785	END=786 PSI STAT/INJ	0	0	0
14:38	2.2		814	786	ST 3 BPM AT 840 PSI	0	3,780	90
15:08	3.0		942	835	END=835 PSI STAT/ 925 INJ	0	0	0
15:08	4.1		1028	836	ST 4 BPM AT 853 PSI	0	5,040	120
15:38	4.1		919	786	END =789 PSI STAT/909 PSI INJ	0	0	0
15:38	4.6		999	787	ST 6 BPM AT 1050 PSI	0	7,560	180
16:08	6.1		1008	769	END = 776 PSI STAT/ 950 PSI INJ	0	0	0
16:08	6.1		1044	769	ST 8 BPM AT 787 PSI	0	10,080	240
16:38	8.0		1062	755	END = 756 PSI STAT/ 1088 PSI INJ	0	0	0
16:38	8.5		1122	755	ST 9 BPM AT 1130 PSI	0	11,340	270
17:08	9.0		1131	769	END=1142 PSI STAT/769 PSI INJ	0	0	0
17:08	9.1		1215	770	ST 10 BPM AT 1225 PSI	0	12,600	300
17:38	2.2		697	778	END =792 PSI STAT/ 1254 PSI INJ	0	0	0
17:38	1.1		703	777	ISIP= 700 PSI STAT/750 PSI INJ	0	0	0
17:43	0.0		725	680	5 MIN = 680 PSI STAT/ 725 PSI INJ	0	0	0
17:48	0.0		706	664	10 MIN =655 PSI STAT/ 706 PSI INJ	0	0	0
17:53	0.0		691	650	15 MIN = 650 PSI STAT/ 690 PSI INJ	0	0	0

Customer Acknowledgement:

Service Rating:
- ☐ Satisfaction
- ☐ Unsatisfaction

Treater: RICK C

PRODUCTS USED
WATER PROVIDED BY CUSTOMER

MAVERICK
STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

Date: 09-Sep-10

Total:	0	54,852	1,306

Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
9.1	4.4	1,301	919

Customer Acknowledgement:

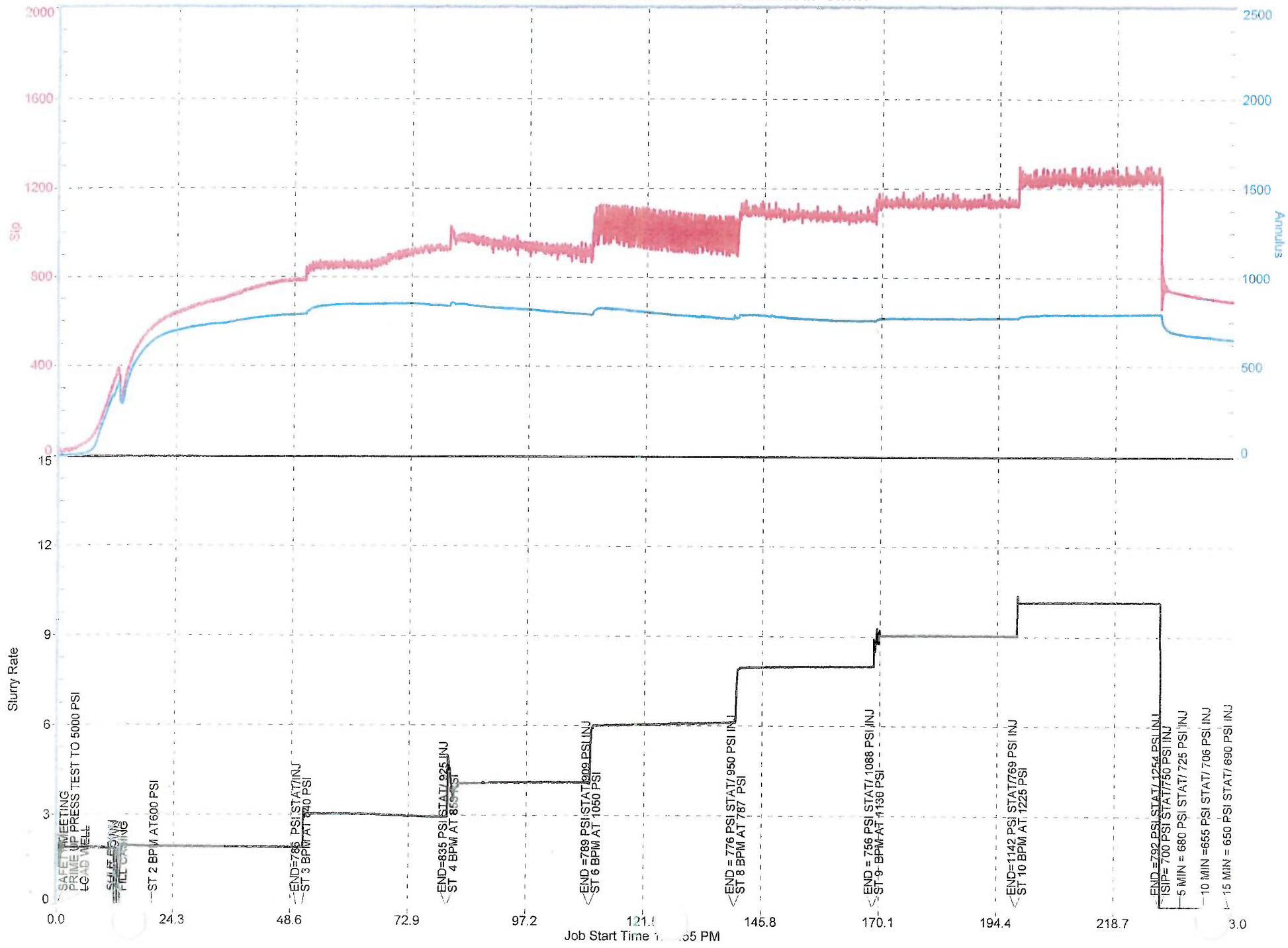
Service Rating:
- ☐ Satisfactory
- ☐ Unsatisfactory

Treater: RICK C

PRODUCTS USED
WATER PROVIDED BY CUSTOMER

HYDRO RESOURCES

ECCV D-1 - LYONS STEP RATE TEST - RED PIN =INJ/BLUE PIN =STATIC



Wolf Camp - Step Rate Test

MAVERICK STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

TREATMENT REPORT - PAGE 1

Date: 30-Aug-10

Well Name:	Location:	Customer Rep:	Field Order #
ECCV DI-1	SEC.1-T1S-R66W	JOHN ASHBY	13315

Stage:	Formation:	Treat Via:	Allowable Pressure Tbg	Allowable Pressure Csg	Well Type:
	WOLF CAMP	TUBING	4,000		INJECTION

County:	State:	Well Age:	PackerType:	PackerDepth:	Csg Size:
ADAMS	CO	NEW		9,525	7

Type Of Service: STEP RATE TEST

Customer Name: HYDRO RESOURCES

Address:

Csg Depth	Tbg Size:	Tbg Depth:	Liner Size:
	3.5		

Liner Depth:	Liner Top:	Liner Bot:	Total Depth:

Open Hole:	Csg Vol:	BHT:	
	84		

Perf Depths:		Perfs:	TotalPerfs:
9558	9582	0	0
		0	
		0	
		0	
		0	
		0	
		0	

Remarks:
SAFETY MEETING
PRIME UP & PRESSURE TEST 4300 PSI,
STEP RT. TEST,1 THRU 9 BPM,30 MIN PER STGE
PUMPED1385 BBLS OF FLUSH WATER,
SHUT DOWN, ISIP = 660 PSI

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	FOAM/FLD (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
10:58	0.0		-13	-7	SAFETY MEETING	0	0	0
11:02	0.0		2	-9	PRESSURE TEST TO 4300 PSI	0	0	0
11:02	0.0		3	-9	ST PUMP-IN	0	0	0
11:03	1.9		1088	-9	2 BPM INJ. RT.TEST START, 1080 PSI	0	0	0
11:33	2.1		1115	-8	2.1 BPM INJ. RT.TEST FINISH, 1120 PSI	0	0	0
11:34	3.2		1260	-8	3.1 BPM INJ. RT.TEST START, 1250 PSI	0	0	0
12:04	3.3		1250	-8	3.2 BPM INJ. RT.TEST FINISH, 1250 PSI	0	0	0
12:05	4.0		1353	-8	4 BPM INJ. RT.TEST START, 1349 PSI	0	0	0
12:36	4.0		1345	-8	4 BPM INJ. RT.TEST FINISH, 1350 PSI	0	0	0
12:38	4.9		1508	-8	4.9 BPM INJ. RT.TEST START, 1510 PSI	0	0	0
13:08	5.0		1554	-9	4.9 BPM INJ. RT.TEST FINISH, 1560 PSI	0	0	0
13:09	6.1		1772	-9	6 BPM INJ. RT.TEST START, 1767 PSI	0	0	0
13:39	6.1		1769	-10	6.1 BPM INJ. RT.TEST FINISH, 1770 PSI	0	0	0
13:40	7.0		1956	-10	7 BPM INJ. RT.TEST START, 1960 PSI	0	0	0
14:10	7.0		1954	-9	7 BPM INJ. RT.TEST FINISH, 1950 PSI	0	0	0
14:11	8.0		2183	-9	8 BPM INJ. RT.TEST START, 2182 PSI	0	0	0
14:41	8.1		2208	-9	8.1 BPM INJ. RT.TEST FINISH, 2210 PSI	0	0	0
14:42	9.0		2451	-9	9 BPM INJ. RT.TEST START, 2460 PSI	0	0	0
15:12	7.3		1905	-10	SHUT DOWN, ISIP = 660 PSI	0	58,170	1,385
15:17	0.0		719	-10	5 MIN. = 718 PSI	0	0	0
15:22	0.0		847	-9	10 MIN.= 850 PSI	0	0	0
15:27	0.0		932	-9	15 MIN.= 930 PSI	0	0	0
15:32	0.0		895	-9	20 MIN.= 900 PSI	0	0	0

Customer Acknowledgement:

Service Rating:
- ☐ Satisfactory
- ☐ Unsatisfactory

Treater: RON PETERSON

PRODUCTS USED
WATER PROVIDED BY CUSTOMER

MAVERICK
STIMULATION COMPANY, LLC

88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

Date: 30-Aug-10

15:37	0.0		864	-9	25 MIN.= 860 PSI	0	0	0
15:42	0.0		835	-9	30 MIN.= 840 PSI	0	0	0
					Total:	0	58,170	1,385

Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
9.0	5.4	2,507	1,598

Customer Acknowledgement:

Service Rating:

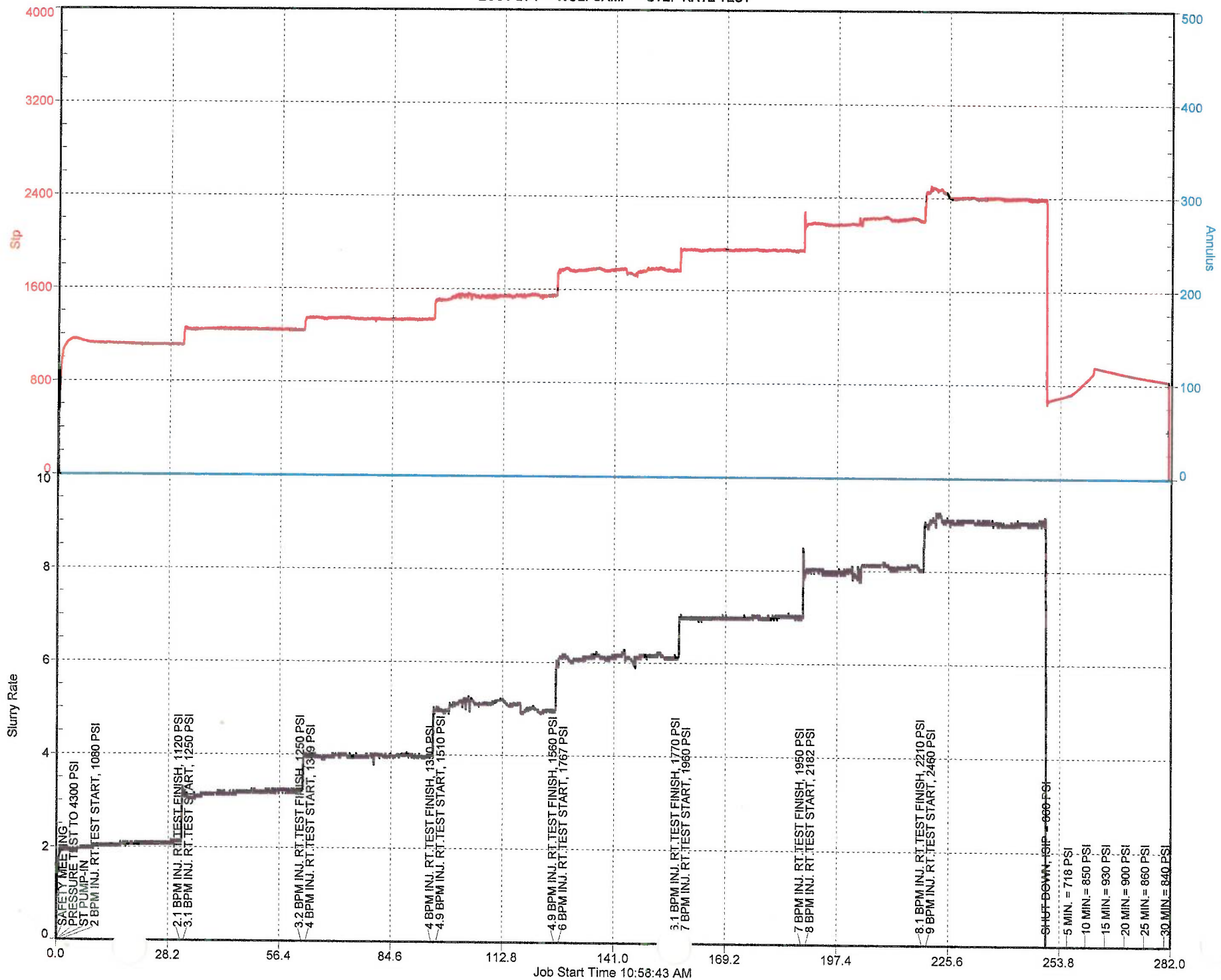
☐ Satisfactory
☐ Unsatisfactory

Treater:
RON PETERSON

PRODUCTS USED
WATER PROVIDED BY CUSTOMER

HYDRO RESOURCES

ECCV DI-1 - WOLFCAMP - STEP RATE TEST



Amazon - Council Grove - Step Rate Test

MAVERICK STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

TREATMENT REPORT - PAGE 1

Date: 26-Aug-10

Well Name:	Location:	Customer Rep:	Field Order #
ECCV DI-1	SEC. 1 - T1S - R66W	JOHN ASHBY	13193

Stage:	Formation:	Treat Via:	Allowable Pressure Tbg	Allowable Pressure Csg	Well Type:
	AMAZON/COUNCIL GROVES	TUBING	4,000		INJECTION

County:	State:	Well Age:	PackerType:	PackerDepth:	Csg Size:
ADAMS	CO	NEW		9,622	7

Type Of Service: STEP RATE TEST

Customer Name: HYDOR RESOURCES

Address:

Remarks:
SAFETY MEETING
PUMPED 1410 BBLS WATER
ISIP = 936 PSI
5 MIN = 741 PSI/10 MIN = 663 PSI
15 MIN = 580 PSI/20 MIN = 505 PSI
25 MIN = 417 PSI/30 MIN = 326 PSI

Csg Depth	Tbg Size:	Tbg Depth:	Liner Size:
	3.5		

Liner Depth:	Liner Top:	Liner Bot:	Total Depth:

Open Hole:	Csg Vol:	BHT:	
	84		

Perf Depths:		Perfs:	TotalPerfs:
9664	9732	350	350
		0	
		0	
		0	
		0	
		0	
		0	

TIME	INJECTION RATE FLUID	INJECTION RATE N2/CO2	PRESSURE STP	PRESSURE ANNULUS	REMARKS	PROP (lbs)	FOAM/FLD (gls)	FLUID (bbls)
11:07	0.0	0.0	-3		SAFETY MEETING	0	0	0.0
11:08	1.4	0.0	0		PRIME UP PRESS TEST TO 5700 PSI	0	0	0.0
11:08	1.5	0.0	1		ST PUMP-IN	0	59,220	1,410.0
11:16	2.2	0.0	188		ST TEST	0	0	0.0
11:16	2.2	0.0	197		INJECTION RATE @ 2.2 BPM = 240 PSI	0	0	0.0
11:45	2.0	0.0	592		INJECTION RATE @ 2 BPM = 592 PSI	0	0	0.0
11:50	3.5	0.0	1045		INJECTION RATE @ 3.5 BPM = 1070 PSI	0	0	0.0
12:15	3.6	0.0	1136		INJECTION RATE @ 3.6 BPM = 1136 PSI	0	0	0.0
12:18	4.1	0.0	1225		INJECTION RATE @ 4.1 BPM = 1218 PSI	0	0	0.0
12:45	4.0	0.0	1185		INJECTION RATE @ 4.0 BPM = 1185 PSI	0	0	0.0
12:50	5.0	0.0	1392		INJECTION RATE @ 5.1 BPM = 1397 PSI	0	0	0.0
13:15	5.4	0.0	1395		INJECTION RATE @ 5.2 BPM = 1397 PSI	0	0	0.0
13:19	6.2	0.0	1567		INJECTION RATE @ 6.2 BPM = 1565 PSI	0	0	0.0
13:45	6.4	0.0	1591		INJECTION RATE @ 6.3 BPM = 1588 PSI	0	0	0.0
13:47	7.1	0.0	1777		INJECTION RATE @ 7.1 BPM = 1774 PSI	0	0	0.0
14:15	7.3	0.0	1806		INJECTION RATE @ 7.2 BPM = 1786 PSI	0	0	0.0
14:17	8.4	0.0	2090		INJECTION RATE @ 8.5 BPM = 2062 PSI	0	0	0.0
14:45	8.8	0.0	2135		INJECTION RATE @ 8.8 BPM = 2133 PSI	0	0	0.0
14:46	9.7	0.0	2346		INJECTION RATE @ 9.7 BPM = 2370 PSI	0	0	0.0
15:15	9.5	0.0	2207		INJECTION RATE @ 9.6 BPM = 2370 PSI	0	0	0.0
15:15	0.4	0.0	872		CUT FLUID - ISIP = 936 PSI	0	0	0.0
15:21	0.0	0.0	741		5 MIN = 741 PSI	0	0	0.0
15:26	0.0	0.0	663		10 MIN = 663 PSI	0	0	0.0
15:31	0.0	0.0	580		15 MIN = 580 PSI	0	0	0.0

Customer Acknowledgement:

Service Rating:
☐ Satisfactory
☐ Unsatisfactory

Treater: CLEAT YOUNG

PRODUCTS USED
FLUID PROVIDED BY CUSTOMER

MAVERICK
STIMULATION COMPANY, LLC

88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

Date: 26-Aug-10

15:36	0.0	0.0	505		20 MIN = 505 PSI	0	0	0.0
15:41	0.0	0.0	417		25 MIN = 417 PSI	0	0	0.0
15:46	0.0	0.0	326		30 MIN = 326 PSI	0	0	0.0
					Total:	0	59,220	1,410.0

Summary

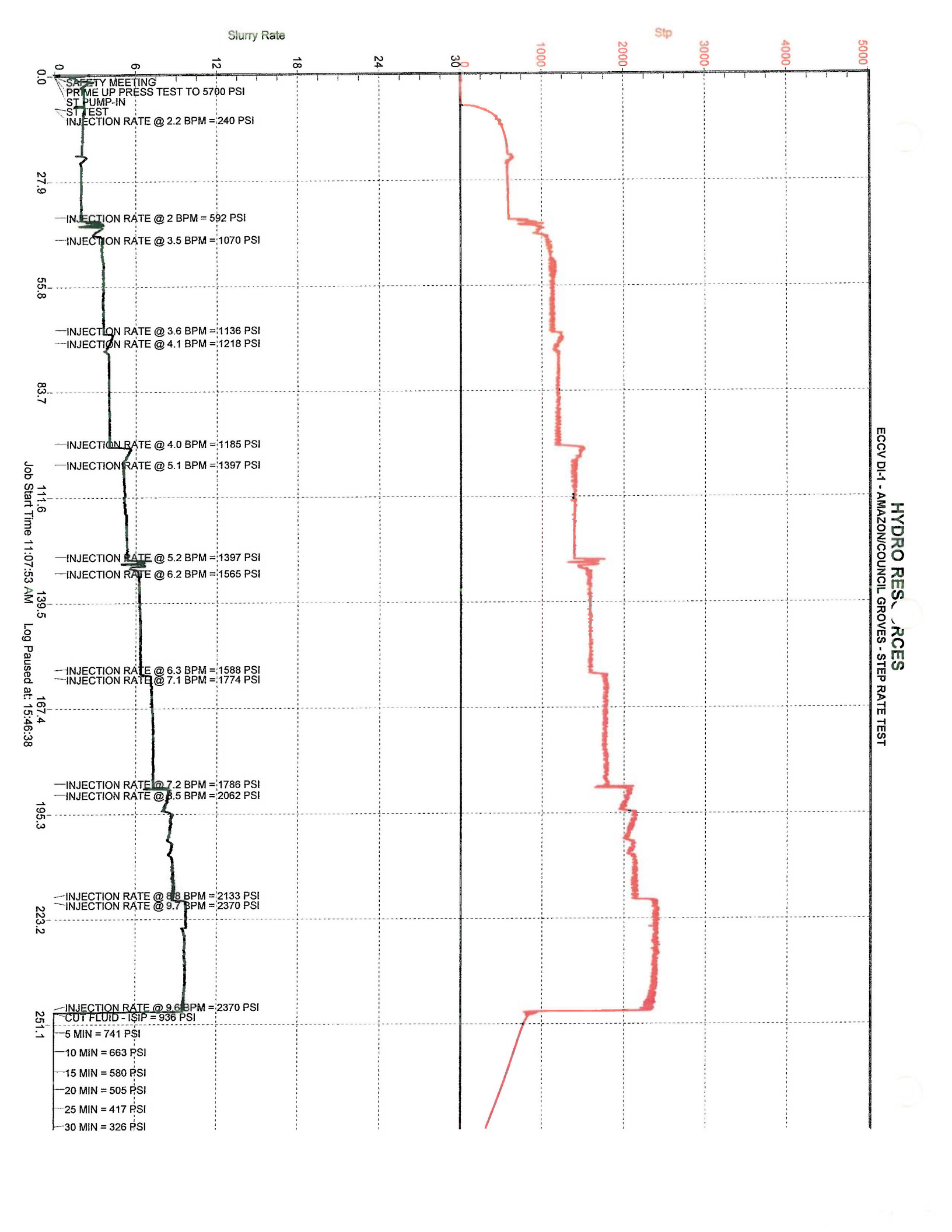
Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
9.7	4.9	2,435	1,365

Customer Acknowledgement:

Service Rating:

☐ Satisfactory
☐ Unsatisfactory

Treater:	PRODUCTS USED
CLEAT YOUNG	FLUID PROVIDED BY CUSTOMER


Slurry Rate
0
6
12
18
24
30
Stp
0
1000
2000
3000
4000
5000
0.0
27.9
55.8
83.7
111.6
139.5
167.4
195.3
223.2
251.1
SAFETY MEETING
PRIME UP PRESS TEST TO 5700 PSI
ST PUMP-IN
ST TEST
INJECTION RATE @ 2.2 BPM = 240 PSI
INJECTION RATE @ 2 BPM = 592 PSI
INJECTION RATE @ 3.5 BPM = 1070 PSI
INJECTION RATE @ 3.6 BPM = 1136 PSI
INJECTION RATE @ 4.1 BPM = 1218 PSI
INJECTION RATE @ 4.0 BPM = 1185 PSI
INJECTION RATE @ 5.1 BPM = 1397 PSI
INJECTION RATE @ 5.2 BPM = 1397 PSI
INJECTION RATE @ 6.2 BPM = 1565 PSI
INJECTION RATE @ 6.3 BPM = 1588 PSI
INJECTION RATE @ 7.1 BPM = 1774 PSI
INJECTION RATE @ 7.2 BPM = 1786 PSI
INJECTION RATE @ 8.5 BPM = 2062 PSI
INJECTION RATE @ 8.8 BPM = 2133 PSI
INJECTION RATE @ 9.7 BPM = 2370 PSI
INJECTION RATE @ 9.6 BPM = 2370 PSI
CUT FLUID - ISIP = 936 PSI
5 MIN = 741 PSI
10 MIN = 663 PSI
15 MIN = 580 PSI
20 MIN = 505 PSI
25 MIN = 417 PSI
30 MIN = 326 PSI
Job Start Time 11:07:53 AM
Log Paused at: 15:46:38
HYDRO RES_ RCES
ECCV DI-1 - AMAZON/COUNCIL GROVES - STEP RATE TEST

MISSOURIAN - STEP RATE TEST

MAVERICK
STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

TREATMENT REPORT - PAGE 1

Date: 23-Aug-10

Well Name:	Location:	Customer Rep:	Field Order #
ECCV DI-1	SEC1 - T1S - R66W	JOHN ASHBY	13069

Stage:	Formation:	Treat Via:	Allowable Pressure Tbg	Allowable Pressure Csg	Well Type:
	MISSOURI	TUBING	4,000		INJECTION

County:	State:	Well Age:	PackerType:	PackerDepth:	Csg Size:
ADAMS	CO	NEW		9,900	7

Type Of Service: INJECTION TEST

Customer Name: HYDRO RESOURCES

Address:

Csg Depth	Tbg Size:	Tbg Depth:	Liner Size:
	3.5		

Liner Depth:	Liner Top:	Liner Bot:	Total Depth:

Open Hole:	Csg Vol:	BHT:	
	86.1		

Perf Depths:		Perfs:	TotalPerfs:
10002	10038	216	216
		0	
		0	
		0	
		0	
		0	
		0	

Remarks: STEP RATES 1 BPM TO 8 BPM FOR 30 MIN
INBETWEEN EACH RATE. PUMPED 870 BBL TOTAL
ISIP=1500 PSI
5 MIN = 1220 PSI 10 MIN = 1130 PSI
15 MIN = 1060 PSI 20 MIN = 1016 PSI
25 MIN=980 PSI 30 MIN = 940PSI

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	FOAM/FLD (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
10:14	0.0		30		SAFTY MEETING			
10:14	0.0		30		PRIME UP PRESS TEST TO 4500 PSI			
10:14	0.0		30		ST PUMPING		36,540	870.0
10:20	0.0		97		ST 1 BPM AT 1140 PSI			
10:49	1.0		1621		END PSI 1622 PSI			
10:49	1.1		1626		ST 2 BPM AT 1740 PSI			
11:20	2.3		1779		END 1760 PSI			
11:21	3.0		1894		ST 3 BNBPM AT 1900 PSI			
11:49	3.0		1889		END PSI 1890			
11:50	4.0		2040		CHANGE GEAR			
11:51	4.0		2083		ST 4 BPM AT 2050 PSI			0.0
12:20	4.0		2018		END 2020PSI			
12:21	5.0		2212		ST 5 BPM AT2200 PSI			
12:50	6.3		2451		END 2170 PSI			
12:50	6.1		2364		ST 6 BPM AT 2350 PSI			
13:20	6.1		2367		END AT 2370 PSI			
13:21	8.0		2870		ST 8 BPM AT 2880 PSI			
13:50	8.2		2836		END AT 2840 PSI			
13:50	0.0		1439		ISIP= 1500 PSI			
13:55	0.0		1222		5 MIN = 1220 PSI			
14:00	0.0		1128		10 MIN = 1130PSI			
14:05	0.0		1065		15 MIN 1064 PSI			
14:10	0.0		1018		20 MIN = 1016 PSI			
14:15	0.0		975		25 MIN=980 PSI			

Customer Acknowledgement:

Service Rating:
- ☐ Satisfactory
- ☐ Unsatisfactory

Treater: RICK C

PRODUCTS USED

WATER PROVIDED BY CUSTOMER.

MAVERICK
STIMULATION COMPANY, LLC
88 INVERNESS CIRCLE E. G-101
ENGLEWOOD, CO 80112
PH (303) 757-7789 FAX (303) 757-7610

Date: 23-Aug-10

14:20	0.0		945		30 MIN = 940 PSI			
					Total:		36,540	870.0

Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
8.2	4.4	3,090	1,944

Customer Acknowledgement: _____

Service Rating:
- ☐ Satisfactory
- ☐ Unsatisfactory

Treater: RICK C

PRODUCTS USED

WATER PROVIDED BY CUSTOMER.

Appendix VIII. Injectate Water Quality Data

Mountain States
ACCUTEST
LABORATORIES

07/18/11

Technical Report for

Hydrokinetics
ECCV DI-1 INJECTATE, RADIONUCLIDES

Accutest Job Number: D24047X

Sampling Date: 06/06/11

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 19

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton
Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3

Table of Contents

-1-

Accutest Laboratories

Sample Summary

Hydrokinetics

Job No: D24047X

ECCV DI-1

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D24047-1X	06/06/11	12:10	PO	06/06/11	AQ	Water	DI-1

Sample Results

Report of Analysis

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877 737 4521
FAX 303 425-6021

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: D24047

Client / Reporting Information

Company Name: HydroKinetics
Street Address: 12975 W 24th Pl,
City: Golden State: Co Zip: 80401
Project Contact: PatOBrien E-mail: PMOB@comcast.net
Phone #: Fax #:
Sampler(s) Name(s): Pat O'Brien Phone #:

Project Information

Project Name: DI-1
Street:
City:
Project #: DI-1
Client PO#: DI-1
Project Manager:

Billing Information (if different from Report to)

Company Name: HK1
Street Address:
City: State: Zip:
Attention: PO#

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB- Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	TDS, Density, pH, NO3 + Nitrate	Sulfate, Fluoride, Cl, Ca, Mg	Na, Lab Filter, Antimony	Arsenic, Ba, Beryllium,	Cd, Cr, Cu, Boron, Fe, Pb	Mn, Hg, Mo, Ni, Se, Silver	Strontium, Thallium, Zn	Spec. cond., Gross Alpha/B	4234, 4238 Thorium 230, Ra 226	Ra 228, K40, Pb 210	LAB USE ONLY
	DI-1		6/6/11	12:10	PAB	W											X	X	X	X	X	X	X	X	X	X	D1

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] Commercial "B" +Narrative
- [ ] FULLT1 (Level 3+4)
- [ ] State Forms
- [ ] EDD Format
- [ ] PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [X] Std. 10 Business Days
- [ ] Std. 5 Business Days (By Contract only)
- [ ] 5 Day RI SH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA LabLink

Comments / Special Instructions:

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Pat O'B	6/6/11 1404	Jacob Roach	2		2
2	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
	3		3	4		4
3	Relinquished by:	Date Time:	Received By:	Custody Seal # HD [X] Intact [ ] Not Intact	Preserved where applicable	On Ice: X	Cooler Temp: 3.4
	5		5			

D24047X: Chain of Custody
Page 1 of 14

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24047 **Client:** HYDROKINTICS

Immediate Client Services Action Required: No

Date / Time Received: 6/6/2011 2:04:00 PM **No. Coolers:** 1

Client Service Action Required at Login: No

Project: DI-1 **Airbill #'s:** HD

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V (303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D24047X: Chain of Custody
Page 2 of 14

CHAIN OF CUSTODY

ACCUTEST.

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #: D24047X
Accutest Quote #:
AMS P.O. #:
Project No.:

Client Information

Name: Accutest Mountain States (AMS)
Address: 4036 Youngfield St.
City: Wheat Ridge, State: CO Zip: 80033
Send Report to: Tiffany Pham
Any questions contact: Amanda Kissell
Phone/Fax #: (303) 425-6021; (303)425-6854

Subcontract Laboratory Information

Name: ~~Fill in New Sub Lab~~ Energy Labs
Address: Street Address
City: City State: State Zip: Zip
Contact: Contact
Phone: Phone #

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation: HCL	NaOH	HNO3	H2SO4	None	Analytical Information: radium 226/228(EPA903+RA-05)	gross alpha/beta + Total solids(epa 900)	Uranium(224/228/ Thorium(230) (both epa908)	Potassium-40(epa 901.1)	Lead-210(epa 909)	Comments
D24047X -1	6/6/11	12:10 PM		DW	9						X	X	X	X	X	
-																
-																

Turnaround Information

[X] 10 Business Day Standard
[ ] Other _____ (Days)
Approved By:

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

[ ] Commercial "A"
[ ] Commercial "B"
[ ] Commercial "BN"
[ ] Reduced Tier 1
[ ] Full Tier 1
[ ] PDF
[ ] Compact Disk Deliverable
[ ] Electronic Delivery:
[ ] State Forms
[ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1			1	6-7-11 915
2			2	
3			3	

For Subcontract Laborartory Use Only

Seal #:
Headspace: Yes [ ] No [ ] NA [ ]
Preserved where applicable: [ ]
Temperature °C 12.6 On Ice [✓]

Page 12 of 12

D24047X: Chain of Custody
Page 3 of 14

ENERGY LABORATORIES
www.energylab.com
Analytical Excellence Since 1952
Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515
Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

ANALYTICAL SUMMARY REPORT

July 15, 2011

Accutest Mountain States
4036 Youngfield St
Wheat Ridge, CO 80033

Workorder No.: C11060329

Project Name: D24047X

Energy Laboratories, Inc. Casper WY received the following 1 sample for Accutest Mountain States on 6/7/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C11060329-001	D24047X-1	06/06/11 12:10	06/07/11	Aqueous	Gross Alpha, Gross Beta Gross Gamma Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Uranium, Isotopic, Total Solids, Total Suspended

This report was prepared by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing. All samples are reported on an as received basis unless otherwise indicated. Samples corrected for dry weight indicate units that have -dry appended.

If you have any questions regarding these test results, please call.

Report Approved By:

Stephanie D Waldrop
Reporting Supervisor

Digitally signed by
Stephanie Waldrop
Date: 2011.07.15 13:10:01 -06:00

CLIENT: Accutest Mountain States
Project: D24047X
Sample Delivery Group: C11060329

Report Date: 07/15/11

CASE NARRATIVE

TH230 ANALYSIS
USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

BRANCH LABORATORY SUBCONTRACT ANALYSIS
Tests associated with analyst identified as ELI-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X
Lab ID: C11060329-001
Client Sample ID: D24047X-1

Report Date: 07/15/11
Collection Date: 06/06/11 12:10
DateReceived: 06/07/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	06/08/11 17:13 / lmc
RADIONUCLIDES - TOTAL							
Gross Alpha	146	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Alpha precision (±)	56.9	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Alpha MDC	81.2	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta	90.2	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta precision (±)	53.0	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta MDC	86.2	pCi/L				E900.0	07/01/11 03:37 / ep
Lead 210	-0.6	pCi/L	U			E909.0	06/27/11 19:11 / eli-cs
Lead 210 precision (±)	0.9	pCi/L				E909.0	06/27/11 19:11 / eli-cs
Lead 210 MDC	1.5	pCi/L 10				E909.0	06/27/11 19:11 / eli-cs
Radium 226	1.0	pCi/L				E903.0	07/14/11 01:56 / trs
Radium 226 precision (±)	0.31	pCi/L				E903.0	07/14/11 01:56 / trs
Radium 226 MDC	0.27	pCi/L 60				E903.0	07/14/11 01:56 / trs
Radium 228	2.9	pCi/L				RA-05	07/08/11 15:45 / plj
Radium 228 precision (±)	1.6	pCi/L				RA-05	07/08/11 15:45 / plj
Radium 228 MDC	2.4	pCi/L 60				RA-05	07/08/11 15:45 / plj
Thorium 230	0.1	pCi/L	U			E908.0	06/30/11 10:26 / dmf
Thorium 230 precision (±)	0.5	pCi/L				E908.0	06/30/11 10:26 / dmf
Thorium 230 MDC	1.4	pCi/L 100				E908.0	06/30/11 10:26 / dmf
Uranium 234	131	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 234 precision (±)	20.0	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 234 MDC	2.2	pCi/L 300				E908.0	07/07/11 16:00 / dmf
Uranium 238	94.9	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 238 precision (±)	15.6	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 238 MDC	1.9	pCi/L 300				E908.0	07/07/11 16:00 / dmf
- See Case Narrative regarding Th230 analysis.							
RADIONUCLIDES - GAMMA							
Potassium 40	206	pCi/L		50.0		E901.1	06/16/11 09:00 / dpb
Potassium 40 precision (±)	80.7	pCi/L 4000				E901.1	06/16/11 09:00 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D										Batch: R146806
Sample ID: MBLK1_		Method Blank				Run: BAL-1_110608B				06/08/11 17:12
Solids, Total Suspended TSS @ 105 C		ND	mg/L	4.0						
Sample ID: LCS1_		Laboratory Control Sample				Run: BAL-1_110608B				06/08/11 17:13
Solids, Total Suspended TSS @ 105 C		164	mg/L	12	82	60	110			
Sample ID: C11060355-001ADUP		Sample Duplicate				Run: BAL-1_110608B				06/09/11 10:16
Solids, Total Suspended TSS @ 105 C		103	mg/L	6.0				1.0	10	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

12 of 14

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0									Batch: GrAB-1105	
Sample ID: MB-GrAB-1105	6	Method Blank				Run: G542M_110623A			06/29/11 22:25	
Gross Alpha		-1.54	pCi/L							U
Gross Alpha precision (±)		0.705	pCi/L							
Gross Alpha MDC		1.37	pCi/L							
Gross Beta		-0.165	pCi/L							U
Gross Beta precision (±)		1.51	pCi/L							
Gross Beta MDC		2.54	pCi/L							
Sample ID: Th230-GrAB-1105		Laboratory Control Sample				Run: G542M_110623A			06/29/11 22:25	
Gross Alpha		87.8	pCi/L	87		80	120			
Sample ID: Cs137-GrAB-1105		Laboratory Control Sample				Run: G542M_110623A			06/29/11 22:25	
Gross Beta		86.4	pCi/L	99		80	120			
Sample ID: C11060153-001DMS		Sample Matrix Spike				Run: G542M_110623A			06/29/11 22:25	
Gross Alpha		111	pCi/L	109		70	130			
Sample ID: C11060153-001DMSD		Sample Matrix Spike Duplicate				Run: G542M_110623A			06/29/11 22:25	
Gross Alpha		128	pCi/L	125		70	130	14	17.1	
Sample ID: C11060153-001DMS		Sample Matrix Spike				Run: G542M_110623A			06/29/11 22:25	
Gross Beta		99.9	pCi/L	109		70	130			
Sample ID: C11060153-001DMSD		Sample Matrix Spike Duplicate				Run: G542M_110623A			06/29/11 22:25	
Gross Beta		99.2	pCi/L	108		70	130	0.7	15.7	
Sample ID: C11060172-005DDUP	6	Sample Duplicate				Run: G542M_110623A			07/01/11 03:37	
Gross Alpha		210	pCi/L					13	19.2	
Gross Alpha precision (±)		9.91	pCi/L							
Gross Alpha MDC		5.38	pCi/L							
Gross Beta		70.3	pCi/L					5.8	20.3	
Gross Beta precision (±)		3.53	pCi/L							
Gross Beta MDC		4.13	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E901.1										Batch: R147245
Sample ID: LCS-R147245	Laboratory Control Sample					Run: GAM-HPGE_110616A				06/16/11 09:00
Potassium 40		1930	pCi/L	50	58	70	130			S
- LCS response for K40 is outside of the acceptance range for this analysis.										
Sample ID: MB-R147245	2 Method Blank					Run: GAM-HPGE_110616A				06/16/11 09:00
Thorium 234		ND	pCi/L	50						U
Gross Gamma		ND	pCi/L	50						U
Sample ID: C11060770-002BDUP	4 Sample Duplicate					Run: GAM-HPGE_110616A				06/16/11 09:00
Bismuth 214		67.9	pCi/L	50				18	20	
Potassium 40		830	pCi/L	50				0.7	20	
Potassium 40 precision (±)		134	pCi/L							
Gross Gamma		1010	pCi/L	50				8.1	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-5447
Sample ID: C11060145-077AMS		Sample Matrix Spike				Run: TENNELEC-3_110623E				07/14/11 01:56
Radium 226		32	pCi/L		115	70	130			
Sample ID: C11060145-077AMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_110623E				07/14/11 01:56
Radium 226		29	pCi/L		103	70	130	9.8	20.2	
Sample ID: MB-RA226-5447	3	Method Blank				Run: TENNELEC-3_110623E				07/14/11 01:56
Radium 226		0.14	pCi/L							U
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.17	pCi/L							
Sample ID: LCS-RA226-5447		Laboratory Control Sample				Run: TENNELEC-3_110623E				07/14/11 01:56
Radium 226		12	pCi/L		93	85	115			

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0									Batch: RA-TH-ISO-1416	
Sample ID: LCS-RA-TH-ISO-1416		Laboratory Control Sample			Run: ALPHANALYST_110628A				06/30/11 10:26	
Thorium 230		6.2	pCi/L		105	70	130			
Sample ID: C11060669-005EMS		Sample Matrix Spike			Run: ALPHANALYST_110628A				06/30/11 10:26	
Thorium 230		11	pCi/L		92	70	130			
Sample ID: C11060669-005EMSD		Sample Matrix Spike Duplicate			Run: ALPHANALYST_110628A				06/30/11 10:26	
Thorium 230		12	pCi/L		100	70	130	7.9	38.7	
Sample ID: MB-RA-TH-ISO-1416	3	Method Blank			Run: ALPHANALYST_110628A				06/30/11 10:26	
Thorium 230		0.033	pCi/L							U
Thorium 230 precision (±)		0.077	pCi/L							
Thorium 230 MDC		0.19	pCi/L							
Method: E908.0									Batch: RA-U-ISO-0462	
Sample ID: LCS-RA-U-ISO-0462	2	Laboratory Control Sample			Run: EGG-ORTEC_110705C				07/07/11 13:55	
Uranium 234		11.3	pCi/L		102	70	130			
Uranium 238		12.2	pCi/L		108	70	130			
Sample ID: C11061131-001CMS	2	Sample Matrix Spike			Run: EGG-ORTEC_110705C				07/07/11 13:55	
Uranium 234		31.0	pCi/L		101	70	130			
Uranium 238		26.9	pCi/L		97	70	130			
Sample ID: C11061131-001CMSD	2	Sample Matrix Spike Duplicate			Run: EGG-ORTEC_110705C				07/07/11 13:55	
Uranium 234		33.3	pCi/L		111	70	130	7.4	33.6	
Uranium 238		29.0	pCi/L		105	70	130	7.4	34.3	
Sample ID: MB-RA-U-ISO-0462	6	Method Blank			Run: EGG-ORTEC_110705C				07/07/11 13:55	
Uranium 234		-0.0120	pCi/L							U
Uranium 234 precision (±)		0.0459	pCi/L							
Uranium 234 MDC		0.131	pCi/L							
Uranium 238		-0.00801	pCi/L							U
Uranium 238 precision (±)		0.0429	pCi/L							
Uranium 238 MDC		0.122	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_PB-210-0118
Sample ID: T11060059-004GMSD		Sample Matrix Spike Duplicate				Run: SUB-T41013				06/27/11 22:29
Lead 210		130	pCi/L		90	70	130	7.4	16.9	
Sample ID: T11060059-004GMS		Sample Matrix Spike				Run: SUB-T41013				06/27/11 21:23
Lead 210		120	pCi/L		84	70	130			
Sample ID: LCS-PB-210-0118		Laboratory Control Sample				Run: SUB-T41013				06/27/11 03:47
Lead 210		51	pCi/L		96	70	130			
Sample ID: MB-PB-210-0118	3	Method Blank				Run: SUB-T41013				06/27/11 02:41
Lead 210		-0.59	pCi/L							U
Lead 210 precision (±)		0.86	pCi/L							
Lead 210 MDC		1.5	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Accutest Mountain States
Project: D24047X

Report Date: 07/15/11
Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05									Batch: RA228-3774	
Sample ID: LCS-228-RA226-5447		Laboratory Control Sample				Run: G5000W_110623C			07/08/11 15:45	
Radium 228		7.4	pCi/L		116	80	120			
Sample ID: MB-RA226-5447	3	Method Blank				Run: G5000W_110623C			07/08/11 15:45	
Radium 228		-0.38	pCi/L							U
Radium 228 precision (±)		0.87	pCi/L							
Radium 228 MDC		1.5	pCi/L							
Sample ID: C11060256-001AMS		Sample Matrix Spike				Run: G5000W_110623C			07/08/11 15:45	
Radium 228		17	pCi/L		120	70	130			
Sample ID: C11060256-001AMSD		Sample Matrix Spike Duplicate				Run: G5000W_110623C			07/08/11 15:45	
Radium 228		17	pCi/L		116	70	130	3.3	36.8	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Workorder Receipt Checklist

C11060329

Accutest Mountain States

Login completed by: Corinne Wagner
Reviewed by: BL2000\cwagner
Reviewed Date: 6/9/2011

Date Received: 6/7/2011
Received by: dw
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature:	12.6°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

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LABORATORIES

06/17/11

Technical Report for

Hydrokinetics
ECCV DI-1 INJECTATE

Accutest Job Number: D24047

Sampling Date: 06/06/11

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 29

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton
Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6

Table of Contents

Accutest Laboratories

Sample Summary

Hydrokinetics

Job No: D24047

ECCV DI-1

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D24047-1	06/06/11	12:10	PO	06/06/11	AQ	Water	DI-1

ACCUTEST Laboratories

2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Hydrokinetics	**Job No**	D24047
Site:	ECCV DI-1	**Report Dat**	6/17/2011 2:14:05 PM

On 06/06/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24047 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method EPA 200.7

Matrix	AQ	Batch ID:	MP4876

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24047-1MS, D24047-1MSD were used as the QC samples for the metals analysis.
- The matrix spike and matrix spike duplicate (MS/MSD) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Calcium, Sodium, Strontium, Magnesium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- D24047-1 for Arsenic: Elevated detection limit due to dilution required for possible matrix interference.

Metals By Method EPA 245.1

Matrix	AQ	Batch ID:	MP4883

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23989-18MS, D23989-18MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D287

Matrix	LIQ	Batch ID:	GN10091

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 300

Matrix	DW	Batch ID:	GP4609

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ	Batch ID: GP4609

- D24047-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Matrix AQ	Batch ID: GP4658

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24084-1MS, D24084-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM16 203

Matrix AQ	Batch ID: R7782

- The data for SM16 203 meets quality control requirements.

Wet Chemistry By Method SM20 2320B

Matrix AQ	Batch ID: GN9980

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24047-1DUP were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Wet Chemistry By Method SM20 2340B

Matrix AQ	Batch ID: R7747

- The data for SM20 2340B meets quality control requirements.
- D24047-1 for Hardness, Calcium: Calculated as: (Calcium * 2.497) to convert to Calcium Carbonate

Wet Chemistry By Method SM20 2510B

Matrix AQ	Batch ID: GP4608

- Sample(s) D24058-3DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ	Batch ID: GN9921

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24058-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Field Data By Method EPA 170.1

Matrix AQ	Batch ID: R7705

- The data for EPA 170.1 meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1		
Lab Sample ID:	D24047-1	**Date Sampled:**	06/06/11
Matrix:	AQ - Water	**Date Received:**	06/06/11
		Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony	< 30	30	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Arsenic [a]	< 130	130	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Barium	539	10	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Beryllium	< 10	10	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Boron	923	50	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Cadmium	< 10	10	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Calcium	1270000	2000	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Chromium	< 10	10	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Copper	< 50	50	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Iron	< 70	70	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Lead	< 250	250	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Magnesium	522000	200	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Manganese	< 5.0	5.0	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Mercury	< 0.10	0.10	ug/l	1	06/09/11	06/09/11	JB	EPA 245.1 [1]	EPA 245.1 [4]
Molybdenum	62.0	10	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Nickel	< 30	30	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Selenium	68.6	50	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Silver	< 30	30	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Sodium	1420000	2000	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Strontium	27100	25	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Thallium	< 50	50	ug/l	5	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]
Zinc	< 30	30	ug/l	1	06/07/11	06/09/11	GJ	EPA 200.7 [2]	EPA 200.7 [3]

(1) Instrument QC Batch: MA1581
(2) Instrument QC Batch: MA1582
(3) Prep QC Batch: MP4876
(4) Prep QC Batch: MP4883

(a) Elevated detection limit due to dilution required for possible matrix interference.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1		
Lab Sample ID:	D24047-1	**Date Sampled:**	06/06/11
Matrix:	AQ - Water	**Date Received:**	06/06/11
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	2340	5.0	mg/l	1	06/13/11	JD	SM20 2320B
Chloride	2060	50	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Corrosivity, Langlier Index	2.2			1	06/13/11	JD	SM16 203
Density by Hydrometer	1.0051		g/ml	1	06/17/11	CJ	ASTM D287
Fluoride	24.8	2.0	mg/l	10	06/14/11 10:40	CB	EPA 300/SW846 9056
Hardness, Calcium [a]	3170	5.0	mg/l	5	06/09/11 21:15	GJ	SM20 2340B
Nitrogen, Nitrate	38.9	4.5	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Nitrogen, Nitrite [b]	< 6.1	6.1	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Solids, Total Dissolved	10300	10	mg/l	1	06/09/11	CJ	SM20 2540C
Specific Conductivity	10900	1.0	umhos/cm	1	06/07/11	JD	SM20 2510B
Sulfate	2480	50	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
pH	7.21		su	1	06/06/11 15:30	JK	SM20 4500H

Field Parameters

Temperature (Field)	20		Deg. C	1	06/06/11	SUB	EPA 170.1

(a) Calculated as: (Calcium * 2.497) to convert to Calcium Carbonate
(b) Elevated detection limit due to matrix interference.

RL = Reporting Limit

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877 737 4521
FAX 303-425-6021

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D24047

Client / Reporting Information

Company Name: Hydrokinetics
Street Address: 12975 W 24th PL,
City: Golden State: Co Zip: 80401
Project Contact: PAT OBRIEN E-mail: PMOB@comcast.net
Phone #: Fax #:
Sampler(s) Name(s): Pat O'Brien Phone #:

Project Information

Project Name: DI-1
Street:
City:
Project #: DI-1
Client PO#: DI-1
Project Manager:

Billing Information (if different from Report to)

Company Name: HKI
Street Address:
City: State: Zip:
Attention: PO#:

Requested Analysis (see TEST CODE sheet)

1. TDS, Density, pH, NO_3 + Nitrite
2. Sulfate, Fluoride, Cl, Ca, Mg
3. Na, LANGLIER, ANTIMONY
4. Arsenic, Ba, Beryllium,
5. Cd, CR, Cu, Boron, Fe, Pb
6. Mn, Hg, Mo, Ni, Se, Silver
7. Strontium, thallium, ZN
8. Spec. cond., GROSS A, GROSS B
9. U234, U238, thorium230, Ra226
10. Ra228, K40, Pb210

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	1	2	3	4	5	6	7	8	9	10		LAB USE ONLY
	DI-1		6/6/11	12:10	POB	W											X	X	X	X	X	X	X	X	X	X		① ⑧

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED - Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB - Field Blank; EB - Equipment Blank; RB - Rinse Blank; TB - Trip Blank

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] Std. 5 Business Days (By Contract only)
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] Commercial "B" +Narrative
- [ ] FULLT1 (Level 3+4)
- [ ] State Forms
- [ ] EDD Format
- [ ] PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Pat OB	6/6/11 1404	1 Jacob Posey 6/6/11 1404	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HD	[x] Intact [ ] Not intact	Preserved where applicable [x] On Ice [x] Cooler Temp. 3.4

4.1

4

D24047: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24047 **Client:** HYDROKINTICS **Immediate Client Services Action Required:** No

Date / Time Received: 6/6/2011 2:04:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: DI-1 **Airbill #'s:** HD

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	
2. Trip Blank listed on COC:	☐	☐	
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume rec'd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

4.1
4

D24047: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/07/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	5.9	7.1		
Antimony	30	3.1	3.1	3.4	<30
Arsenic	25	5.9	5.9	3.0	<25
Barium	10	1.1	1.1	0.60	<10
Beryllium	10	.44	1.8	-0.60	<10
Boron	50	4.8	4.8	-2.0	<50
Cadmium	10	.27	.62	0.20	<10
Calcium	400	9.6	28	19.9	<400
Chromium	10	.18	.42	0.40	<10
Cobalt	5.0	.35	.4		
Copper	10	.85	1.9	1.4	<10
Iron	70	3.4	5.5	53.0	<70
Lead	50	1.6	1.8	3.6	<50
Lithium	2.0	.28	.46		
Magnesium	200	5.8	12	19.9	<200
Manganese	5.0	.053	.28	1.1	<5.0
Molybdenum	10	.45	1.1	2.7	<10
Nickel	30	.43	.96	-0.20	<30
Phosphorus	100	11	12		
Potassium	1000	55	130		
Selenium	50	3.8	5.7	0.70	<50
Silicon	50	3.8	3.8		
Silver	30	.18	.56	0.20	<30
Sodium	400	110	110	16.8	<400
Strontium	5.0		.17	0.10	<5.0
Thallium	10	2.9	2.9	5.9	<10
Tin	50	5.5	15		
Titanium	10	.11	.17		
Uranium	50	1.5	1.9		
Vanadium	10	.16	.18		
Zinc	30	.28	1.4	11.8	<30

Associated samples MP4876: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.1 5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/07/11

Metal	D24047-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony	17.4	1040	1000	102.3	70-130
Arsenic	0.00	1140	1000	114.0	70-130
Barium	539	1490	2000	47.6N(a)	70-130
Beryllium	3.2	492	500	97.8	70-130
Boron	923	2040	1000	111.7	70-130
Cadmium	1.3	536	500	106.9	70-130
Calcium	1270000	1260000	25000	-40.0(b)	70-130
Chromium	0.0	472	500	94.4	70-130
Cobalt	anr				
Copper	5.0	520	500	103.0	70-130
Iron	56.4	4990	5000	98.7	70-130
Lead	8.0	947	1000	93.9	70-130
Lithium					
Magnesium	522000	533000	25000	44.0 (b)	70-130
Manganese	2.2	466	500	92.8	70-130
Molybdenum	62.0	556	500	98.8	70-130
Nickel	13.8	437	500	84.6	70-130
Phosphorus					
Potassium	anr				
Selenium	68.6	1150	1000	108.1	70-130
Silicon					
Silver	0.0	228	200	114.0	70-130
Sodium	1420000	1400000	25000	-80.0(b)	70-130
Strontium	27100	26700	500	-80.0(b)	70-130
Thallium	20.5	975	1000	95.5	70-130
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	14.1	457	500	88.6	70-130

Associated samples MP4876: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.
(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2 5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/07/11

Metal	D24047-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	17.4	1050	1000	103.3	1.0	20
Arsenic	0.00	1150	1000	115.0	0.9	20
Barium	539	1730	2000	59.6N(a)	14.9	20
Beryllium	3.2	496	500	98.6	0.8	20
Boron	923	2050	1000	112.7	0.5	20
Cadmium	1.3	548	500	109.3	2.2	20
Calcium	1270000	1270000	25000	0.0 (b)	0.8	20
Chromium	0.0	477	500	95.4	1.1	20
Cobalt	anr					
Copper	5.0	515	500	102.0	1.0	20
Iron	56.4	5070	5000	100.3	1.6	20
Lead	8.0	965	1000	95.7	1.9	20
Lithium						
Magnesium	522000	554000	25000	128.0	3.9	20
Manganese	2.2	470	500	93.6	0.9	20
Molybdenum	62.0	568	500	101.2	2.1	20
Nickel	13.8	446	500	86.4	2.0	20
Phosphorus						
Potassium	anr					
Selenium	68.6	1160	1000	109.1	0.9	20
Silicon						
Silver	0.0	230	200	115.0	0.9	20
Sodium	1420000	1450000	25000	120.0	3.5	20
Strontium	27100	27900	500	160.0(b)	4.4	20
Thallium	20.5	983	1000	96.3	0.8	20
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	14.1	469	500	91.0	2.6	20

Associated samples MP4876: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.
(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2 5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/07/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony	985	1000	98.5	85-115
Arsenic	1050	1000	105.0	85-115
Barium	2020	2000	101.0	85-115
Beryllium	537	500	107.4	85-115
Boron	1090	1000	109.0	85-115
Cadmium	518	500	103.6	85-115
Calcium	28000	25000	112.0	85-115
Chromium	501	500	100.2	85-115
Cobalt	anr			
Copper	504	500	100.8	85-115
Iron	5250	5000	105.0	85-115
Lead	1060	1000	106.0	85-115
Lithium				
Magnesium	27200	25000	108.8	85-115
Manganese	499	500	99.8	85-115
Molybdenum	514	500	102.8	85-115
Nickel	500	500	100.0	85-115
Phosphorus				
Potassium	anr			
Selenium	1140	1000	114.0	85-115
Silicon				
Silver	207	200	103.5	85-115
Sodium	27100	25000	108.4	85-115
Strontium	519	500	103.8	85-115
Thallium	1060	1000	106.0	85-115
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	517	500	103.4	85-115

Associated samples MP4876: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4876
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.3

5

ACCUTEST LABORATORIES

D24047

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4883
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/09/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.011	.014	-0.015	<0.10

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.2.1
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4883
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/09/11

Metal	D23989-18 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0	3.3	3.13	105.6	70-130

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

5.2.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4883
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/09/11

Metal	D23989-18 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	3.3	3.13	105.6	0.0	20

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP4883
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/09/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	3.1	3.13	99.2	85-115

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

5.2.3
5

Mountain States
ACCUTEST
LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN9980	5.0	0.0	mg/l	1000	1010	101.1	90-110%
Bromide	GP4609/GN9895	0.050	0.0	mg/l	20	20.2	101.0	90-110%
Bromide	GP4658/GN10003	0.20	0.0	mg/l	20	20.1	100.5	90-110%
Chloride	GP4609/GN9895	0.50	0.0	mg/l	20	19.3	96.5	90-110%
Chloride	GP4658/GN10003	0.50	0.0	mg/l	20	18.5	92.5	90-110%
Fluoride	GP4658/GN10003	0.20	0.0	mg/l	10	9.86	98.6	90-110%
Nitrogen, Nitrate	GP4609/GN9895			mg/l	4.52	4.48	99.2	90-110%
Nitrogen, Nitrate	GP4658/GN10003	0.045	0.0	mg/l	4.52	4.60	101.8	90-110%
Nitrogen, Nitrite	GP4609/GN9895			mg/l	6.09	5.93	97.4	90-110%
Nitrogen, Nitrite	GP4658/GN10003	0.061	0.0	mg/l	6.09	6.40	105.1	90-110%
Solids, Total Dissolved	GN9921	10	0.0	mg/l	400	426	106.5	90-110%
Specific Conductivity	GP4608/GN9888			umhos/cm	98.7	93.6	94.8	90-110%
Sulfate	GP4609/GN9895	0.50	0.0	mg/l	30	28.6	95.3	90-110%
Sulfate	GP4658/GN10003	0.50	0.0	mg/l	30	29.7	99.0	90-110%
pH	GN9871			su	8.00	7.96	99.5	99.3-100.7%

Associated Samples:
Batch GN9871: D24047-1
Batch GN9921: D24047-1
Batch GN9980: D24047-1
Batch GP4608: D24047-1
Batch GP4609: D24047-1
Batch GP4658: D24047-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN9980	D24047-1	mg/l	2340	2320	1.0	0-20%
Solids, Total Dissolved	GN9921	D24058-2	mg/l	72.0	86.0	17.7	0-25%
Specific Conductivity	GP4608/GN9888	D24058-3	umhos/cm	521	518	0.6	0-20%

Associated Samples:
Batch GN9921: D24047-1
Batch GN9980: D24047-1
Batch GP4608: D24047-1
(*) Outside of QC limits

6.2
6

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP4609/GN9895	D24084-2	mg/l	0.0	5	5.5	110.0	80-120%
Bromide	GP4658/GN10003	D24084-1	mg/l	0.0	2.5	2.5	100.0	80-120%
Chloride	GP4609/GN9895	D24084-2	mg/l	14.9	20	35.8	104.5	80-120%
Chloride	GP4658/GN10003	D24084-1	mg/l	11.2	10	22.0	108.0	80-120%
Fluoride	GP4658/GN10003	D24084-1	mg/l	0.065	2.5	2.5	97.4	80-120%
Nitrogen, Nitrate	GP4609/GN9895	D24084-2	mg/l	0.071	1.13	1.3	108.8	80-120%
Nitrogen, Nitrate	GP4658/GN10003	D24084-1	mg/l	0.0	0.565	0.60	106.2	80-120%
Nitrogen, Nitrite	GP4609/GN9895	D24084-2	mg/l	0.0	0.609	0.63	103.4	80-120%
Nitrogen, Nitrite	GP4658/GN10003	D24084-1	mg/l	0.0	0.305	0.33	108.4	80-120%
Sulfate	GP4609/GN9895	D24084-2	mg/l	1.6	20	22.6	105.0	80-120%
Sulfate	GP4658/GN10003	D24084-1	mg/l	1.5	10	11.4	99.0	80-120%

Associated Samples:
Batch GP4609: D24047-1
Batch GP4658: D24047-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

6.3
6

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D24047
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP4609/GN9895	D24084-2	mg/l	0.0	5	5.4	1.8	20%
Bromide	GP4658/GN10003	D24084-1	mg/l	0.0	2.5	2.5	0.0	20%
Chloride	GP4609/GN9895	D24084-2	mg/l	14.9	20	35.3	1.4	20%
Chloride	GP4658/GN10003	D24084-1	mg/l	11.2	10	22.3	1.4	20%
Fluoride	GP4658/GN10003	D24084-1	mg/l	0.065	2.5	2.4	4.1	20%
Nitrogen, Nitrate	GP4609/GN9895	D24084-2	mg/l	0.071	1.13	1.3	0.0	20%
Nitrogen, Nitrate	GP4658/GN10003	D24084-1	mg/l	0.0	0.565	0.58	3.4	20%
Nitrogen, Nitrite	GP4609/GN9895	D24084-2	mg/l	0.0	0.609	0.61	3.2	20%
Nitrogen, Nitrite	GP4658/GN10003	D24084-1	mg/l	0.0	0.305	0.34	3.0	20%
Sulfate	GP4609/GN9895	D24084-2	mg/l	1.6	20	22.2	1.8	20%
Sulfate	GP4658/GN10003	D24084-1	mg/l	1.5	10	11.4	0.0	20%

Associated Samples:
Batch GP4609: D24047-1
Batch GP4658: D24047-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

INJECTION WELL COMPLETION REPORT FORM 7520-9-- EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc.
July 22, 2011

TABLE OF CONTENTS

Table 6. Cementing Data.
Table 7. Vertical Wellbore Deviation Surveys.
Table 8. Injectate Water Quality Summary.

Appendix 1C. Formation Water Quality Data
Appendix VIII. Injectate Water Quality Data
Appendix V. Logging and Testing Results

I. Geologic Information

1. Lithology and Stratigraphy

A. Geologic Information of Units Penetrated

A description of the rock units penetrated by the well is presented in the attached Lithology Strip Log (pocket) and in the Table 1 below.

Table 1. Geologic Description of Rock Units Penetrated by Well.

Period	Geologic Unit	Depth (ft.)	Thickness (ft.)	Description
Quaternary	Alluvium	0-60	60	Unconsolidated sand, silt, clay and gravel
Cretaceous	Arapahoe	60-616	556	Tan to gray sandstone and conglomerate, some shale and coal.
Cretaceous	Laramie-Fox Hills	616-1728	1112	Tan to gray sandstone, with dark shale and thin coal
Cretaceous	Pierre SH	1728-7130	5402	Gray to black shale, some sandstone layers
Cretaceous	Niobrara	7130-7556	426	Gray to brown shale
Cretaceous	Fort Hays LS (in Niobrara)	7530-7556	26	Gray limestone interbedded with shale
Cretaceous	Greenhorn	7556-7925	369	Gray-black, shale and limestone
Cretaceous	Dakota GP	7925-8325	400	Tan, gray, white sandstone, siltstone and shale
Cretaceous	J Sandstone (in Dakota GP)	7987-8050	63	Clear to white sandstone, with rare shale layers
Cretaceous	Dakota SS (in Dakota GP)	8152-8325	173	Clear to white sandstone, with rare shale layers
Jurassic	Morrison	8325-8488	163	Tan and maroon sandstone and siltstone
Jurassic	Entrada SS	8488-8683	195	White sandstone, some anhydrite and shale
Permian	Lykins	8683-9150	467	Red shale and siltstone, with anhydrite at base
Permian	Lyons	9150-9268	118	White to pink sandstone
Permian	L. Satanka	9268-9525	257	Red shale and sandstone with blue-white dolomite layers
Permian	Wolfcamp	9525-9663	138	Gray dolomite, sandstone, shale, and limestone
Permian	Amazon	9663-9702	39	White to blue limestone and dolomite
Permian	Council Grove	9702-9758	56	White to red limestone and dolomite with some sandstone shale layers
Pennsylvanian	Admire	9802-9934	132	White to red limestone and dolomite with some shale
Pennsylvanian	Virgil	9934-10002	68	White to red limestone and dolomite
Pennsylvanian	Missouri(an)	10002-10220	218	White to pink limestone and dolomite
Pennsylvanian	Fountain	10220-10271	51	Red sandstone and dolomite

Missouri unit also referred to as Missourian.

B. Detailed Description of Injection Units

Four geologic units were perforated and will received injected fluids. These are the Lyons, Wolfcamp, Amazon/Council Grove, and Missourian. With the approval of EPA personnel, the Amazon and Council Grove Formations were combined into one injection unit because they are relatively thin, adjacent to each other and have similar geology. A summary of these units and requested data are provided in Table 2. Note that fracture pressure was never reached on any of the formations. The requested depth, thickness, geologic age, and lithology are provided in Table 1.

Table 2. Summary of Downhole Data for Injection Units.

Injection Unit	**Lyons**	**Wolfcamp**	**Amazon/ Council Grove**	**Missourian**
Formation Fluid Pressure (psi)	3990	4150	3600	3810
Avg. Porosity (percent)	6	5	5	8
Estimated Permeability (md)	5-10	1-5	5-10	1-5
Fracture Pressure (psi)	greater than 1254	greater than 2460	greater than 2370	greater than 2880
Bottom Hole Temperature (F)	NA	NA	NA	284
Bottom Hole Pressure (psi)	NA	NA	NA	3880

C. Formation Chemistry

After each of the four zones was perforated, they were swabbed until the specific conductivity of the water removed from the unit was stable for at least three consecutive swab runs. At that time, the sample was considered to be representative of the formation fluid. At that point, a sample was secured and tested in the laboratory for TDS, pH, specific conductivity and specific gravity as required by the permit. Although not required, we were able to test some of the samples for additional inorganics, including some major cations, anion, and some metals. The original laboratory results are attached in Appendix 1C at the end of this report. The water quality data for the injection zones are summarized below in Table 3.

Table 3. Water Quality Summary in Injection Units (August-September, 2010)

Formation	LYONS	WOLFCAMP	COUNCIL GROVE/AMAZON	MISSOURIAN	units
Barium	152	807	1660		ug/l
Calcium	233000	118000	620000		ug/l
Iron	195000	40000	216000		ug/l
Magnesium	144000	12700	123000		ug/l
Manganese	2480	4140	4470		ug/l
Potassium	674000	8130000	574000		ug/l
Silicon (filtered)	26700	290	61700		ug/l
Sodium	4990000	248000	5120000		ug/l
Strontium	3290	2100	11100		ug/l
Alkalinity, Bicarbonate as CaCO3	801	15	1270		mg/l
Alkalinity, Carbonate	<5.0	<5.0	<5.0		mg/l
Chloride	6160	8770	6380		mg/l
Fluoride	<20	4.9	262		mg/l
Nitrogen, Nitrate	4	<0.90	<1.1		mg/l
Phosphate Ortho	<1.3	<1.3	<1.6		mg/l
Redox Potential vs H2	259	NT	NT		mg/l
Silica, dissolved (filtered)	57.1	0.62	132		mg/l
TDS	17700	17900	15800	21000	mg/l
Specific conductivity	21100	25900	21100	30900	umhos/cm
Specific gravity by hydrometer	1.0151	1.0129	1.0129	1.0143	
Sulfate	3200	356	2060		mg/l
Sulfide	6.1				mg/l
pH	6.61	6.02	6.47	7.74	

D. Freshwater aquifers

There are three freshwater (drinking-water) aquifers penetrated by well DI-1. The information in Table 4 is based on our experience with numerous wells in the Denver basin and Table 2.4 in the EPA Injection Well Permit for well DI-1. They aquifers include the alluvium, Arapahoe and Laramie-Fox Hills. The depth to the base of the lowermost freshwater aquifer is about 1728 feet. Data on these aquifers including average TDS values are presented in Table 4.

Table 4. Freshwater Aquifers.

Period	Geologic Unit	Depth (ft.)	Estimated TDS (ppm)	Thickness (ft.)	Description
Quaternary	Alluvium	0-60	750	60	Unconsolidated sand, silt, clay and gravel
Cretaceous	Arapahoe	60-616	800	556	Tan to gray sandstone and conglomerate, some shale and coal.
Cretaceous	Laramie-Fox Hills	616-1728	550	1112	Tan to gray sandstone, with dark shale and thin coal

II. Well Design and Construction

1. Casing and Tubing

Surface and long string casing were installed and cemented in well DI-1. A permanent packer was then set inside the long string on tubing. The casing and tubing data are provide in Table 5 and in the As-Built diagram (pocket).

Table 5. Casing, Tubing Data.

	Surface Casing	**Long String Casing**	**Tubing**
Material	steel	steel	steel
Diameter (in.)	9 5/8	7	4 ½
Grade	J55 STC	–80 LTC	–80 LTC with internal coating TK-805
Weight (ppf)	36	26	11.6
Setting Depth (ft.)	1473	10,248	9,052

2. Cement

All cement was placed using the Halliburton method and is summarized in Table 6.

Table 6. Cementing Data.

	Depth (ft.)	Cement Type	Weight (lb/gal)	Amount (sacks)
Long String, 1st stage	7750-10,248	Class G	15.8	456
Long String, 2nd stage	2382-7750	Class G	15.8	415
Long String, 3rd stage	GL-2382	Class G	15.3	739
Surface Casing	GL-1473	Class G + 2% Calcium	15.8	875

3. Packer.

A 7 inch x 4 inch (model 23-32) Permpac Permanent Seal Bore Packer with 9-chrome mandrel and a wireline re-entry guide on the end of the 4.5 inch tubing was set at 9052 feet. It is engaged against the 7 inch casing. Water (300 barrels) mixed with 55 gallons of Endura CI811 Packer Fluid and 10 gallons of Novacide 1025 Biocide was place in the casing-tubing annulus.

4. Centralizers

32 steel centralizers were set on the surface casing (9 5/8-inch), evenly spaced from ground level to 1473 feet. 150 steel centralizers were set on the long string (7-inch) casing from ground level to 10,248 feet.

5. Bottom Hole Completions

Not applicable.

6. Well Stimulations

Not applicable.

III. Description of Surface Equipment

The surface equipment is currently being installed. A portion of the construction plans relevant to the injection well are attached. In general, water coming from a wellfield will be pumped to a treatment facility. In the treatment plant the water is first filtered, run through a reverse osmosis membrane (module), run through a second brine concentration module and into the well. Prior to injection, hydrochloric acid will added to the brine to bring the solution to a pH of 7. The purpose of reducing the pH is to minimize mineral precipitation downhole, which could plug well perforations.

Attached are diagrams that show the site layout, hardware, and operations of the surface equipment, including:

G-5 Process Flow Diagram
MA-1 Overall Layout
IA-1 Notes and Abbreviations
C-6 Yard Piping I
C-10 Yard Piping II
C-11 Yard Piping III

IV. Monitoring Systems

1. Pressure and temperature gauges, flow measurements, and shutdown procedures.

The flowpath of the water/brine as it moves from the wellfield to the injection well, along with flowmeter locations, is shown in the diagrams presented in Section III above. Locations of valving, pressure/temperature gauges, and flowmeter are show in the attached Process and Instrumentation Diagram IA-3B (pocket). The abbreviations on this diagram are explained on Sheet IA-1 (pocket.

A summary of the emergency shutdown procedure is presented below.

Emergency Shutdown Procedures

Pumping into the injection well will be automatically shut down when either of the following two conditions occur. The first is when the injection pressure at the well head becomes greater than the maximum allowable pressure of 3120 psi. The second is when a 20% change occurs in the pressure in the tubing-casing annulus. The target pressure in the TCA will initially be set at 100 psi. A change in pressure in the TCA indicates a leak in the tubing, casing or packer.

The system will also shut down automatically by the VFD if any of the following occur:

Low suction pressure
High injection pressure
High temperature
High amperage on the pump motors
Communication failure (loss of signal)
Loss of electrical phase

When any of these conditions occur the following sequence will be initiated.

*A 0-15 second timer with an operator setpoint starts
*If the pressure drops below 3120 psi or the TCA pressure returns to between 80 and 120 psi the timer resets and operations continue
*If the timer reaches the setpoint and the pressures remain above the setpoint the normal pump shutdown sequence begins.
*The injection pump VSD begins a normal gradual decrease in speed from 60 hz to 30 hz in 15-30 seconds as determined by the pump supplier and operator.
*When the minimum VSD speed is reached the pump stops. The flow into the well also stops and the wellhead pressure gradually decreases as the injection fluid dissipates into the formation.
*When the wellhead pressure reaches 0 psi, the operator and service personnel can diagnose and make repairs as needed.

All pressure, temperature and flow measurements are monitored continuously and recorded electronically. Data will be recorded daily, at a minimum. If necessary, especially during troubleshooting, the data can be recorded as fast as every 1.5 seconds.

V. Logging and Testing Results

Geophysical logs, as required, are provided in the pocket at the back of this report. Included are:

Dual Induction log (with caliper, porosity, SP, and resistivity surveys), cement bond log for surface hole/casing
Dual Induction log (with caliper, porosity, SP, and resistivity surveys), cement bond log for longstring hole/casing
Two temperature logs for longstring casing in the perforated zones.

As drilling proceeded, vertical deviation surveys (in degrees) were taken on a regular basis (see Table 7).

Table 7. Vertical Wellbore Deviation Surveys.

Depth, ft.	Degrees	Depth, ft.	Degrees	Depth, ft.	Degrees	Depth, ft.	Degrees
259	.3	4419	3.3	6897	2.4	8660	.2
528	.4	4667	3.4	7144	2.7	8846	.7
743	.2	4883	3.0	7393	2.8	9092	2.0
928	.7	4946	2.6	7485	2.3	9278	2.2
1239	.8	5193	2.5	7578	1.5	9340	1.8
1479	.8	5441	2.4	7889	.9	9650	.9
1546	.7	5626	2.1	8044	.9	9843	.6
1731	.7	5688	2.0	8259	.5	10030	.5
1947	.7	5936	1.5	8414	.4	10270	.4
2412	.6	6649	1.6	8476	.3		

Step test results were conducted on all four perforated zones, and on the entire perforated sections. The results are provided in Appendix V, Logging and Testing Results.

VI. As-Built Diagrams

The As-Built diagrams of the well and wellhead are attached (pocket). A 0-200 psi range pressure gauge will be installed to monitor the tubing-casing pressure.

VII. Mechanical Integrity

The mechanical integrity of the well has been demonstrated using the cement bond log. The log has been reviewed and the wells's integrity has been approved by EPA personnel. The cement bond log is in the pocket at the back of this report.

VIII. Compatibility of Injectate with Injection Zone Fluids

A pilot-scale reverse osmosis treatment system was constructed and operated during June, 2011. We obtained and tested a sample of the treated fluid that is representative of the injectate that will be injected into well DI-1 (see Table 8). The required testing for radionuclides was also completed on this sample. Radionuclide results are provided in a separate file in Appendix VIII--Injectate Water Quality Data. The injectate has a TDS of 10,300 mg/l, is high in calcium, magnesium and sodium, with a pH of 7.21.

As shown in Table 3, the water in the injection units is similar to the injectate with said waters generally high in calcium, potassium, sodium, with TDS ranging from 15,800 to 21,000, and pH ranging between 6.02 and 7.74.

Accutest Mountain States	Table 8. Injectate Water Quality Summary. Jun 17, 2011 14:12 pm	
Job Number:	**D24047**	
Account:	**Hydrokinetics**	
Project:	**ECCV DI-1- INJECTATE**	
Project Number:		
	Legend:	Hit
Client Sample ID:		**DI-1**
Lab Sample ID:		**D24047-1**
Date Sampled:		**06/06/2011**
Matrix:		**Water**
	Metals Analysis	
Antimony	ug/l	<30
Arsenic	ug/l	<130 [a]
Barium	ug/l	539
Beryllium	ug/l	<10
Boron	ug/l	923
Cadmium	ug/l	<10
Calcium	ug/l	1270000
Chromium	ug/l	<10
Copper	ug/l	<50
Iron	ug/l	<70
Lead	ug/l	<250
Magnesium	ug/l	522000
Manganese	ug/l	<5.0
Mercury	ug/l	<0.10
Molybdenum	ug/l	62.0
Nickel	ug/l	<30
Selenium	ug/l	68.6
Silver	ug/l	<30
Sodium	ug/l	1420000
Strontium	ug/l	27100
Thallium	ug/l	<50
Zinc	ug/l	<30
	General Chemistry	
Alkalinity, Total as CaCO3	mg/l	2340
Chloride	mg/l	2080
Corrosivity, Langlier Index		2.2
Density by Hydrometer	g/ml	1.0051
Fluoride	mg/l	24.8
Hardness, Calcium	mg/l	3170 [b]
Nitrogen, Nitrate	mg/l	38.9
Nitrogen, Nitrite	mg/l	<6.1 [c]
Solids, Total Dissolved	mg/l	10300
Specific Conductivity	umhos/cm	10900
Sulfate	mg/l	2480
pH	su	7.21
	Field Data	
Temperature (Field)	Deg. C	20
	Footnotes:	
[a] Elevated detection limit due to dilution required for possible matrix interference.		
[b] Calculated as: (Calcium * 2.497) to convert to Calcium Carbonate		
[c] Elevated detection limit due to matrix interference.		

IX. Corrective Action in Area of Review

There are no defective wells requiring or undergoing corrective action in the area of review.

X. Anticipated Maximum Flow Rate and Pressure

We anticipate injecting at approximately 200 to 400 gallons per minute intermittently throughout any given year. The pressure during this injection will increase with time as the well plugs with precipitates and bacteria. We will likely clean the well every year or two to maximize flow through the perforations. The expected wellhead pressure during injection will generally be below 2000 psi. The maximum wellhead pressure will never exceed the MAIP of 3120 psi. The maximum flow into the well could be as high as 700 gpm, but this flow rate will likely only be maintained for very short periods.

Appendix 1C. Formation Water Quality Data

Mountain States ACCUTEST

IT'S ALL IN THE CHEMISTRY

09/22/10

Technical Report for

Hydrokinetics

ECCV DI-1 LYONS

Accutest Job Number: D17121

Sampling Date: 09/03/10

Report to:

Hydrokinetics
12975 West 24th Place
Golden, CO 80401
pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 33

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6 7 8

Table of Contents

Accutest Laboratories

Sample Summary

Hydrokinetics

Job No: D17121

ECCV DI-1

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D17121-1	09/03/10	16:15	PO	09/03/10	AQ	Water	DI-1 LYONS
D17121-1A	09/03/10	16:15	PO	09/03/10	AQ	Water	DI-1 LYONS
D17121-1F	09/03/10	16:15	PO	09/03/10	AQ	Water Filtered	DI-1 LYONS

ACCUTEST Laboratories

2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Hydrokinetics **Job No** D17121

Site: ECCV DI-1 **Report Dat** 9/22/2010 8:34:52 AM

On 09/03/2010, one (1) samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 4.0°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D17121 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method EPA 200.7

Matrix AQ **Batch ID:** MP2890

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17116-1MS and D17116-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery of Silicon is outside control limits. The spike amount is low relative to the sample amount. Refer to the lab control or spike blank for recovery information.

Wet Chemistry By Method ASTM D287

Matrix ALL **Batch ID:** GN6257

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method ASTM E1498-76

Matrix AQ **Batch ID:** M:GN32793

- The data for ASTM E1498-76 meets quality control requirements.
- The following samples were run outside of holding time for method ASTM E1498-76: D17121-1
- Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ	Batch ID: GP2726

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17031-1MS and D17031-1MSD were used as the QC samples for the anion analysis.
- Sample D17121-1 for ortho-Phosphate: The reporting limit (RL) was raised due to matrix interference.

Matrix AQ	Batch ID: GP2759

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17263-7MS and D17263-7MSD were used as the QC samples for the anion analysis.

Matrix AQ	Batch ID: GP2800

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17246-1MS and D17246-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM20 2320B

Matrix AQ	Batch ID: GN6293

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix AQ	Batch ID: GN6294

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM20 2510B

Matrix AQ	Batch ID: GP2746

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D17084-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ	Batch ID: GN6244

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D17050-2DUP was used as the QC sample for the Total Dissolved Solids analysis.

Wet Chemistry By Method SM20 4500H

Matrix AQ	Batch ID: GN6265

- The following samples were run outside of holding time for method SM20 4500H: D17121-1

Wet Chemistry By Method SM20 4500S2 CF

Matrix AQ	Batch ID: GN6248

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17080-1DUP and D17084-1MS were used as the QC samples for the Sulfide analysis.

Wet Chemistry By Method SW846 6010B

Matrix AQ	Batch ID: R4417

- The data for SW846 6010B meets quality control requirements.
- Dissolved Silica: Calculated as: (Silicon * 2.139)

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States **Job No** D17121

Site: HYDRCOG: ECCV DI-1 **Report Date** 9/20/2010 5:00:54 PM

1 Sample was collected on 09/03/2010 and were received at Accutest on 09/03/2010 properly preserved, at 1.2 Deg. C and intact. These Samples received an Accutest job number of D17121. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method ASTM E1498-76

Matrix: AQ **Batch ID:** GN32793

- Sample(s) D17121-1DUP were used as the QC samples for Redox Potential Vs H2.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D17121).

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 LYONS	Date Sampled:	09/03/10
Lab Sample ID:	D17121-1	Date Received:	09/03/10
Matrix:	AQ - Water	Percent Solids:	n/a
Project:	ECCV DI-1		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	152	10	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Calcium	233000	400	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Iron	195000	70	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Magnesium	144000	200	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Manganese	2480	5.0	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Potassium	674000	1000	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]
Sodium	4990000	4000	ug/l	10	09/15/10	09/17/10	JM	EPA 200.7 [2]	EPA 200.7 [3]
Strontium	3290	5.0	ug/l	1	09/15/10	09/16/10	JM	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA984
(2) Instrument QC Batch: MA986
(3) Prep QC Batch: MP2890

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 LYONS		
Lab Sample ID:	D17121-1	Date Sampled:	09/03/10
Matrix:	AQ - Water	Date Received:	09/03/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	801	5.0	mg/l	1	09/09/10	JD	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/09/10	JD	SM20 2320B
Chloride	6160	250	mg/l	500	09/10/10 21:36	JML	EPA 300/SW846 9056
Fluoride	< 20	20	mg/l	100	09/17/10 13:51	GH	EPA 300/SW846 9056
Nitrogen, Nitrate	4.0	0.90	mg/l	20	09/03/10 18:04	JML	EPA 300/SW846 9056
Phosphate, Ortho [a]	< 1.3	1.3	mg/l	20	09/03/10 18:04	JML	EPA 300/SW846 9056
Redox Potential Vs H2 [b]	259		mv	1	09/08/10	AMA	ASTM E1498-76
Specific Conductivity	21100	1.0	umhos/cm	1	09/09/10	JK	SM20 2510B
Specific Gravity by Hydromete	1.0151			1	09/07/10	CJ	ASTM D287
Sulfate	3200	250	mg/l	500	09/10/10 21:36	JML	EPA 300/SW846 9056
Sulfide	6.1	0.50	mg/l	1	09/07/10	JD	SM20 4500S2 CF
pH	6.61		su	1	09/07/10 14:45	JD	SM20 4500H

(a) Elevated detection limit due to matrix interference.
(b) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 LYONS		
Lab Sample ID:	D17121-1A	Date Sampled:	09/03/10
Matrix:	AQ - Water	Date Received:	09/03/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	17700	10	mg/l	1	09/06/10	JK	SM20 2540C

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 LYONS		
Lab Sample ID:	D17121-1F	Date Sampled:	09/03/10
Matrix:	AQ - Water Filtered	Date Received:	09/03/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Silicon	26700	50	ug/l	1	09/15/10	09/21/10	JM	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA993
(2) Prep QC Batch: MP2890

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	DI-1 LYONS		
Lab Sample ID:	D17121-1F	Date Sampled:	09/03/10
Matrix:	AQ - Water Filtered	Date Received:	09/03/10
		Percent Solids:	n/a
Project:	ECCV DI-1		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Silica, Dissolved [a]	57.1	0.11	mg/l	1	09/21/10 12:24	JM	SW846 6010B

(a) Calculated as: (Silicon * 2.139)

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

D17121 PAGE 1 OF 1

ACCUTEST Laboratories
4036 Youngfield Street, Wheat Ridge, Colorado 80033
TEL. 303-425-6021; 877-737-4521 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: HKI
Street Address:
City State Zip:
Project Contact: PAT OBRIEN E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Pat OBrien Phone #:

Project Information

Project Name: ECCV OF-1
Street:
City State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

Company Name: Same
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	pH, TDS, Specific Cond.	Specific Gravity	Na, Ca, Mg, Ba, Sr, K, Fe	Mn, Cl, SO4, F, PO4	Silica, Salinity	Redox	Nitrate, Carb, Bicarb	LAB USE ONLY
	OF-1 LYONS		9-3-10	16:15	PO	W	3									X	X	X	X	X	X	X	01

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] UST Analysis 3-5 Days
- [ ] 6 - 9 Day RUSH
- [ ] 3 - 5 Day RUSH
- [x] 2 Day EMERGENCY TDS ONLY
- [ ] 1 Day EMERGENCY

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Labiink

Data Deliverable Information

- [ ] Level 1
- [ ] Level 2
- [ ] Level 3
- [ ] Level 4
- [ ] PDF
- [ ] EDD Format
- [ ] Other

Level 1 = Results Only
Level 2 = Results + QC Summary + Case Narrative
Level 3 = Results + QC Summary + Partial Raw data
Level 4 = Full Deliverable

Comments / Special Instructions

Rush on TDS only,

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Pat OBr	9-3-10 17:00	1 Jacob Porter 9/3/10 17:00			2
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not Intact	Preserved where applicable: On Ice: Cooler Temp. 4.0

4.1 4

D17121: Chain of Custody
Page 1 of 1

Metals Analysis

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 09/15/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	7	10		
Antimony	30	1.7	1.4		
Arsenic	25	2.8	3.6		
Barium	10	.14	.46	0.0	<10
Beryllium	10	1.4	.57		
Boron	50	3.5	1.4		
Cadmium	10	.22	.46		
Calcium	400	17	51	12.3	<400
Chromium	10	.27	.18		
Cobalt	5.0	.48	.4		
Copper	5.0	1.6	.76		
Iron	70	7.7	8	8.2	<70
Lead	50	1.3	1.2		
Lithium	2.0	.76	1.6		
Magnesium	200	5.8	13	5.8	<200
Manganese	5.0	.21	.3	0.30	<5.0
Molybdenum	10	.41	.64		
Nickel	30	.38	.3		
Phosphorus	100	15	15		
Potassium	1000	380	140	146	<1000
Selenium	50	2.8	1.5		
Silicon	50	12	13	-0.20	<50
Silver	30	.98	.3		
Sodium	400	230	55	-130	<400
Strontium	5.0	.091	.22	0.10	<5.0
Thallium	10	3.1	2.3		
Tin	50	14	9.9		
Titanium	10	.098	.15		
Uranium	50	2.2	2.5		
Vanadium	10	.27	.25		
Zinc	30	.76	3.5		

Associated samples MP2890: D17121-1, D17121-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.1 5

ACCUTEST
D17121

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 09/15/10

Metal	D17116-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	175	2170	2000	99.8	70-130
Beryllium					
Boron					
Cadmium					
Calcium	312000	337000	25000	100.0	70-130
Chromium	anr				
Cobalt					
Copper	anr				
Iron	18.8	5050	5000	100.6	70-130
Lead					
Lithium					
Magnesium	46400	71700	25000	101.2	70-130
Manganese	268	741	500	94.6	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	20800	47100	25000	105.2	70-130
Selenium					
Silicon	30000	32100	1000	170.0(a)	70-130
Silver					
Sodium	192000	227000	25000	108.0	70-130
Strontium	2450	2980	500	106.0	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2890: D17121-1, D17121-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 09/15/10

Metal	D17116-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	175	2130	2000	97.8	1.9	20
Beryllium						
Boron						
Cadmium						
Calcium	312000	332000	25000	80.0	1.5	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	18.8	4950	5000	98.6	2.0	20
Lead						
Lithium						
Magnesium	46400	70400	25000	96.0	1.8	20
Manganese	268	737	500	93.8	0.5	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	20800	46200	25000	101.6	1.9	20
Selenium						
Silicon	30000	32100	1000	170.0(a)	0.0	20
Silver						
Sodium	192000	223000	25000	92.0	1.8	20
Strontium	2450	2930	500	96.0	1.7	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP2890: D17121-1, D17121-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

5.1.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 09/15/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	1920	2000	96.0	85-115
Beryllium				
Boron				
Cadmium				
Calcium	25100	25000	100.4	85-115
Chromium	anr			
Cobalt				
Copper	anr			
Iron	4870	5000	97.4	85-115
Lead				
Lithium				
Magnesium	24100	25000	96.4	85-115
Manganese	475	500	95.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	24500	25000	98.0	85-115
Selenium				
Silicon	952	1000	95.2	85-115
Silver				
Sodium	25700	25000	102.8	85-115
Strontium	500	500	100.0	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2890: D17121-1, D17121-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

QC Batch ID: MP2890
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

5.1.3

5

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN6293	5.0	2.2	mg/l	100	101	100.7	90-110%
Alkalinity, Carbonate	GN6294	5.0	0.0	mg/l	100	101	100.7	80-120%
Bromide	GP2759/GN6329	0.20	0.0	mg/l	20	18.8	94.0	90-110%
Chloride	GP2726/GN6312	0.50	0.18	mg/l	20	21.1	105.5	90-110%
Chloride	GP2759/GN6329	0.50	0.0	mg/l	20	20.8	104.0	90-110%
Chloride	GP2800/GN6430	0.50	0.0	mg/l	20	18.4	92.0	90-110%
Fluoride	GP2800/GN6430	0.20	0.0	mg/l	10	9.08	90.8	90-110%
Nitrogen, Nitrate	GP2726/GN6312	0.045	0.0	mg/l	4.52	4.28	94.7	90-110%
Nitrogen, Nitrate	GP2759/GN6329	0.045	0.0	mg/l	4.52	4.24	93.8	90-110%
Nitrogen, Nitrate	GP2800/GN6430	0.045	0.0	mg/l	4.52	4.44	98.3	90-110%
Nitrogen, Nitrite	GP2726/GN6312	0.061	0.0	mg/l	6.09	6.08	99.8	90-110%
Nitrogen, Nitrite	GP2759/GN6329	0.061	0.0	mg/l	6.09	5.96	97.9	90-110%
Phosphate, Ortho	GP2759/GN6329	0.065	0.0	mg/l	9.78	9.39	96.0	90-110%
Solids, Total Dissolved	GN6244	10	0.0	mg/l	400	415	103.8	90-110%
Specific Conductivity	GP2746/GN6303	1.0	<1.0	umhos/cm	99.9	92.1	92.2	90-110%
Sulfate	GP2726/GN6312	0.50	0.0	mg/l	30	29.1	97.0	90-110%
Sulfate	GP2759/GN6329	0.50	0.0	mg/l	30	29.0	96.7	90-110%
Sulfate	GP2800/GN6430	0.50	0.0	mg/l	30	29.3	97.7	90-110%
Sulfide	GN6248	0.50	<0.50	mg/l	3.56	3.4	95.5	60-120%
pH	GN6265			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GN6244: D17121-1A
Batch GN6248: D17121-1
Batch GN6265: D17121-1
Batch GN6293: D17121-1
Batch GN6294: D17121-1
Batch GP2726: D17121-1
Batch GP2746: D17121-1
Batch GP2759: D17121-1
Batch GP2800: D17121-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6244	D17050-2	mg/l	307	106	5.5	0-25%
Specific Conductivity	GP2746/GN6303	D17084-1	umhos/cm	1040	1050	0.9	0-20%
Sulfide	GN6248	D17080-1	mg/l	<0.50	<0.50	0.0	0-20%

Associated Samples:
Batch GN6244: D17121-1A
Batch GN6248: D17121-1
Batch GP2746: D17121-1
(*) Outside of QC limits

6.2
6

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP2759/GN6329	D17263-7	mg/l	0.0	2.5	2.4	96.0	80-120%
Chloride	GP2726/GN6312	D17031-1	mg/l	1.0	10	9.6	86.0	80-120%
Chloride	GP2759/GN6329	D17263-7	mg/l	1.9	10	10.6	87.0	80-120%
Chloride	GP2800/GN6430	D17246-1	mg/l	114	50	166	104.0	80-120%
Fluoride	GP2800/GN6430	D17246-1	mg/l	0.88	2.5	3.2	92.8	80-120%
Nitrogen, Nitrate	GP2726/GN6312	D17031-1	mg/l	0.0091	0.565	0.55	95.7	80-120%
Nitrogen, Nitrate	GP2759/GN6329	D17263-7	mg/l	0.096	0.565	0.62	92.7	80-120%
Nitrogen, Nitrate	GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.51	90.3	80-120%
Nitrogen, Nitrite	GP2726/GN6312	D17031-1	mg/l	0.0	0.305	0.29	95.2	80-120%
Nitrogen, Nitrite	GP2759/GN6329	D17263-7	mg/l	0.0	0.305	0.28	92.0	80-120%
Phosphate, Ortho	GP2759/GN6329	D17263-7	mg/l	0.0	0.815	0.74	90.8	80-120%
Sulfate	GP2726/GN6312	D17031-1	mg/l	40.4	50	91.3	101.8	80-120%
Sulfate	GP2759/GN6329	D17263-7	mg/l	7.3	10	16.8	95.0	80-120%
Sulfate	GP2800/GN6430	D17246-1	mg/l	113	50	164	102.0	80-120%
Sulfide	GN6248	D17084-1	mg/l	0.90	3.56	3.9	84.3	60-120%

Associated Samples:
Batch GN6248: D17121-1
Batch GP2726: D17121-1
Batch GP2759: D17121-1
Batch GP2800: D17121-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D17121
Account: HYDRCOG - Hydrokinetics
Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP2759/GN6329	D17263-7	mg/l	0.0	2.5	2.5	4.1	20%
Chloride	GP2726/GN6312	D17031-1	mg/l	1.0	10	9.5	1.0	20%
Chloride	GP2759/GN6329	D17263-7	mg/l	1.9	10	11.0	3.7	20%
Chloride	GP2800/GN6430	D17246-1	mg/l	114	50	166	0.0	20%
Fluoride	GP2800/GN6430	D17246-1	mg/l	0.88	2.5	3.2	0.0	20%
Nitrogen, Nitrate	GP2726/GN6312	D17031-1	mg/l	0.0091	0.565	0.54	1.8	20%
Nitrogen, Nitrate	GP2759/GN6329	D17263-7	mg/l	0.096	0.565	0.65	4.7	20%
Nitrogen, Nitrate	GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.52	1.9	20%
Nitrogen, Nitrite	GP2726/GN6312	D17031-1	mg/l	0.0	0.305	0.30	3.4	20%
Nitrogen, Nitrite	GP2759/GN6329	D17263-7	mg/l	0.0	0.305	0.29	3.5	20%
Phosphate, Ortho	GP2759/GN6329	D17263-7	mg/l	0.0	0.815	0.76	2.7	20%
Sulfate	GP2726/GN6312	D17031-1	mg/l	40.4	50	89.8	1.7	20%
Sulfate	GP2759/GN6329	D17263-7	mg/l	7.3	10	17.4	3.5	20%
Sulfate	GP2800/GN6430	D17246-1	mg/l	113	50	164	0.0	20%

Associated Samples:
Batch GP2726: D17121-1
Batch GP2759: D17121-1
Batch GP2800: D17121-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

6.4
6

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #: D17121
Accutest Quote #:
AMS P.O. #:
Project No.:

Client Information			Subcontract Laboratory Information			Analytical Information
Name: Accutest Mountain States (AMS)			Name: Accutest - New England			
Address: 4036 Youngfield St.			Address: 495 Technology Center West, BLDG O			
City: Wheat Ridge,	State: CO	Zip: 80033	City: Marlborough	State: MA	Zip: 01752	
Send Report to: Tiffany Pham			Contact: Sample Management			
Any questions contact: Amanda Kissell						
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (508) 481-6200			

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	eh					Comments
D17121 -1	9/3/10	4:15 PM		AQ	1						X					

Turnaround Information

- [X] 10 Business Day Standard
- [ ] Other _____ (Days)

Approved By:

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [x] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery:
- [ ] State Forms
- [ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

1C

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1		9/7/10 1507	FedEx	
2	FedEx	9/8/10 9:30		
3				

For Subcontract Laboratory Use Only

Seal #: Headspace: Yes ☐ No ☐ NA ☐

Preserved where applicable: ☐

Temperature °C 12 On Ice ☑

7.1

7

D17121: Chain of Custody
Page 1 of 1
Accutest Labs of New England, Inc.

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D17121
Account: ALMS - Accutest Mountain States
Project: HYDRCOG: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN32793	D17121-1	mv	259	260	0.4	0-%

Associated Samples:
Batch GN32793: D17121-1
(*) Outside of QC limits

8.1
8